THE

PENNY CYCLOPÆDIA

OF

THE SOCIETY

FOR THE

DIFFUSION OF USEFUL KNOWLEDGE.

VOLUME IV.

BASSANTIN——BLOEMAART.

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BASSANTIN, or BASSINTOUN, JAMES, son of the 'Laird of Bassintin in the Mers,' (Merse?) (*Biog. Brit.*) He was educated at Glasgow, and afterwards travelled, but finally settled at Paris, where he taught mathematics and astronomy. Of his personal life we know nothing, but that he was addicted to astrology, and gave Sir Robert Melville (see his memoirs or *Biog. Brit.*) some predictions a little after the time of Queen Mary's escape into England. He returned to Scotland in 1562 and died 1568. (See ASTRONOMY, and place the date there given, 1557, in brackets; it is the date of publication of a work.) He was of Murray's party, and a zealous Protestant.

He wrote various works, as follows:— 1. *Paraphrase sur l'Astrolabe*, Lyons, 1555, reprinted at Paris, 1617. 2. *Mathematica Genethliaca.* 3. *De Mathesi in Genere.* 4. *Musica secundum Platonem.* 5. *Arithmetica.* To these works we cannot find dates. 6. A work on Astronomy, in French, (presently to be noticed,) translated into Latin by De Tournes (Tornesius), under the title of *Astronomia J. Bassantini Scoti*, &c., reprinted 1613.

There is also a *Discours Astronomique*, published in 1557, at Lyons, and Lalande gives the title of a Latin version published at Geneva in 1599, and again in 1613. Delambre doubts whether this *Discours Astronomique* be any other than the original of No. 6 in the list above; and we incline to think he is right, for, independently of the coincidence of editors and dates, this *Discours Astronomique* appears to be the work of Bassantin's which was best known. It was the only one in De Thou's library, and is the only one in that of the Faculty of Advocates, at Edinburgh. It is the only work mentioned by Weidler, while No. 6 is the only one mentioned by Vossius. Vossius observes that the original was written in very bad French, and that the author knew 'neither Greek nor Latin, but only Scotch.'

The trigonometry of Bassantin uses only sines. His planetary system is that of Ptolemy, and he was much indebted to Purbach. He adopted the *trepidation* of the equinoxes. (See ASTRONOMY.) He used the sphere in actual computations; and, in his treatise on the planisphere, appears to have followed the plan, if not the work, of Apian. (See *Biog. Brit.*; Delambre, *Hist. de l'Astron. Mod.*, &c.)

BASSEIN, a town and port in the province of Aurungabad, situated on the point of the continent of Hindustan opposite to the north end of the island of Salsette, in 19° 20′ N. lat., and 72° 56′ E. long. Bassein was once a city and fortress of importance, but, sharing the fate of many places in India, it has suffered from the wars and revolutions to which that country has been exposed, and is now fallen into decay.

In the year 1531 Bassein was ceded to the Portuguese, under the provisions of a treaty concluded by them with the sultan of Cambay, and for more than two centuries it remained in the undisturbed possession of that nation. In 1750 the town was taken by the Maharattas, from whom it was captured by the British in December, 1774; and in the following March was formally yielded to its conquerors by a treaty made with the Maharatta chief, Ragoba. By the treaty of Poonah, Bassein was, however, again relinquished to the Maharattas. In November, 1780, the fortress was regularly besieged by the British army under General Goddard, and, after sustaining the attack for four weeks, surrendered at discretion. By the treaty concluded in May, 1782, with the Maharatta chiefs, Bassein was once more restored, together with Ahmedabad and our other conquests in Gujerat, and the town long remained in possession of the Maharattas. In 1802 the Peishwa Bajee Rao fled to Bassein from his rival, Holkar, and sought the protection of the British government, with whom he concluded a treaty on the last day of that year. It was hoped that this treaty would have broken up the federal union of the Maharatta chiefs, by separating from it the Peishwa, who had been its nominal head; but this chief having subsequently been induced to join his former rivals and to organize with them a plan of hostility to the English, the whole of his territories were declared forfeited, and were taken into possession by the Company's government in June, 1818, he becoming a stipendiary of that government, and recognizing this appropriation of his territories. Bassein has since that time remained in the hands of the English, under whom the fortifications have been allowed to go to decay, and the town and port have become of little importance. At a recent date, the town contained a great number of houses in ruins.

The state of cultivation exhibited in the surrounding country is, on the contrary, flourishing. To the north and north-east of Bassein are forests of teak-wood, from which the ship-building establishments at Bombay are supplied. A considerable part of the agricultural population are professors of the Roman Catholic religion, which it is probable was introduced among them by the early European settlers from Portugal.

(Rennell's *Memoir of a Map of Hindustan*; Mills's *History of British India*; *Treaties presented to Parliament by command of his Majesty*, 1819; *Report of Committee of the House of Commons on the Affairs of India*, 1832, *political division*.)

BASSETERRE is the capital of the island of St. Christopher's in the West Indies. The town is situated on the south side of the island, at the mouth of a small river. It contains about 800 houses, many of which are very good, a spacious square, and a small church, and is defended by three forts. It was founded in 1623. The district of Basseterre contains 17 square miles, with a population of 6620 souls. It is divided into two parishes, St. George's and St. Peter's, and sends six members to the assembly—the former four, the latter two. This name was given by the French to the district from its being the lower portion of the island. The vale of Basseterre is exceedingly beautiful and well cultivated. The anchorage is in an open bay, and a continual heavy surf beats on the shore, which is a sandy beach. As this prevents any wharf or quay being erected, the goods are shipped in a boat called a 'moses,' manned by expert rowers, who, watching the *lull* of the surf, pull on shore, laying the broadside of the boat to the beach so as to roll out or admit the cargo. Those articles which are packed in water-tight casks, as rum, &c., are generally floated off or on shore. The town lies in 17° 19½′ N. lat., 62° 49½′ W. long. [See CHRISTOPHER'S, ST.]

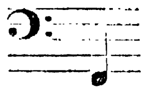
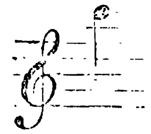
BASSETERRE (Guadaloupe), the most considerable town of the western island, and the centre of its commerce, lies on the western side, near the south end of the island. It consists of one principal long street, running along the sea-shore, and is defended by Forts-Royal and Matilda. The anchorage is in an open road, quite unsheltered, and very incommodious, and there is a constant swell.

This western island is divided longitudinally into two parts, of which the western division is called Basseterre, and the eastern Cabesterre.

The town lies in 15° 59½′ N. lat., 61° 47½′ W. long. [See GUADALOUPE.]

BASSETERRE, a small town on the south-west point of the island of Marie Galante. It is defended by a small fort, which lies in 15° 52′ N. lat., 61° 22′ W. long. [See MARIE GALANTE.]

(Jefferies's *West Indies ;* Bryan Edwards's *West Indies ; Colombian Navigator.*)

BASSET-HORN, a musical instrument, which, notwithstanding its name, is a clarinet [see CLARINET] of enlarged dimensions and extended scale, said to have been invented in Germany in 1770, but known to have been produced in an improved state twelve years later by M. Lotz of Presburg; and subsequently, in its present perfect condition, by the brothers, Anthony and John Stadler, of the imperial Austrian chapel. The basset-horn is longer than the clarinet, and the bell end is wider. On account of its length, the tube, which consists of five pieces, is bent inwards, forming a very obtuse angle. The scale of this instrument embraces nearly four octaves,—from C the second space in the base, to G in altissimo, including every semitone; but its real notes, in relation to its use in the orchestra, are from F below the base staff,  to C, the second leger line above the treble, 

The basset-horn takes an intermediate place between the clarinet and bassoon, and, on account of its vast compass, may perform the functions of both. Its capabilities and beauty are strikingly displayed in Mozart's *Requiem ;* and in the aria, *Non più di fiore*, in his *Clemenza di Tito ;* as well as in other works of the same great composer, who well understood its value.

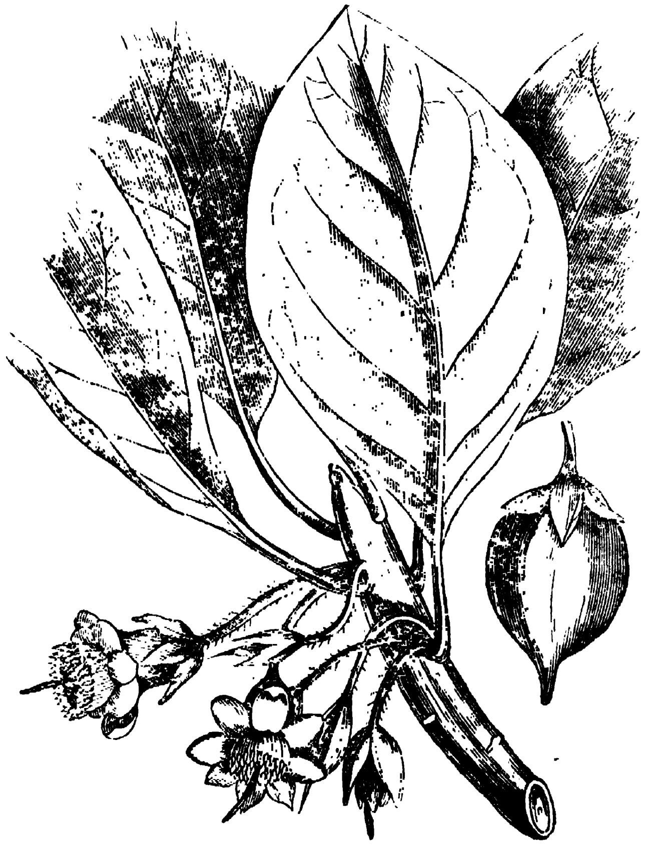
The Italian name for this instrument, and that by which it is generally designated in scores, is *corno bassetto*, or *rather low horn*, the termination *etto* being a diminutive. The unfitness of this term must at once be obvious: but, unhappily, the musical nomenclature abounds in obscurity, absurdities, and contradictions.

BASSEVELDE, a commune and market-town in the province of East Flanders, four leagues north of Ghent. The market occurs weekly, and a fair is held every year in the month of September. The tanning of hides and oil-crushing are carried on here, and lace-making gives employment to the females of the place. The soil consists, for the most part, of clay and sand. Towards the south-east of the commune, the land is marshy, and a considerable number of cattle are kept. The population in 1831 amounted to 3750. (Meisser's *Dictionnaire Geographique de la Flandre Orientale*, 1834.)

BA'SSIA, a genus of tropical plants, belonging to the natural order *Sapoteæ*, containing several interesting species. It has a calyx of four or five leaves, a monopetalous fleshy corolla, with its border generally eight-parted, and a great number of stamens. The ovary terminates in a long taper style, and contains from six to eight one-seeded cells. The fruit has a pulpy rind, with not more than three or four cells, the remainder being abortive.

The species are found in the East Indies and in Africa, where they are of great economical importance on account of the abundance of a sweet buttery substance which is yielded by their seeds when boiled. We shall mention briefly all of which anything useful is known.

Bassia butyracea, the Indian butter-tree, also the *Fulwa*, or *Phulwara-tree*, is found wild on the Almora hills in India, where it grows to a considerable size, its trunk sometimes measuring fifty feet in height, and five or six feet in circumference. It has broad, oval, long-stalked leaves, from six to twelve inches long, smooth on their upper surface, hairy on their under. The flowers, which are large and pale yellow, hang down, near the tips of the branches, from the axils of the leaves, and generally grow three together. They are succeeded by smooth, pulpy fruits, about as large as a pigeon's egg, usually containing two or three roundish light-brown seeds. From these is produced a fat-like substance, which is a kind of vegetable butter, concerning which we find the following information in the *Asiatic Researches*, by Dr. Roxburgh:—'On opening the shell of the seed or nut, which is of a fine chestnut colour, smooth and brittle, the kernel appears of the size and shape of a blanched almond. The kernels are bruised on a smooth stone, to the consistency of cream, or of a fine pulpy matter, which is then put into a cloth bag, with a moderate weight laid on, and left to stand till the oil or *fat* is expressed, which becomes immediately of the consistency of hog's-lard, and is of a delicate white colour. Its uses are in medicine, being highly esteemed in rheumatism and contractions of the limbs. It is also much valued, and used by natives of rank, as an unction, for which purpose it is generally mixed with an *utr* (aromatic oil) of some kind. Except the fruit, which is not much esteemed, no other part of the tree is used. After the oil has been expressed, the dregs are employed by the poor as food. This phulwara butter will keep many months in India without acquiring any bad colour, taste, or smell, and might no doubt be substituted advantageously for animal butter. The timber is of no value, being nearly as light as that of the *Semul*, or cotton-tree (*Bombax heptaphyllum*).



[Bassia butyracea.]

Bassia longifolia, the Indian oil-tree, is a large tree, a good deal like the last, but its leaves are narrower, and its flowers much more fleshy. It is a native of the peninsula of India, and is found in plantations along the southern coast of Coromandel, where it is called the *Illupie-tree.* Its fruit is yellowish, and yields by pressure a valuable oil, which is used by the poorer natives of India for their lamps, for soap, and, instead of better oil, for cookery. The flowers also are roasted and eaten by the Indian peasants, or bruised and boiled to a jelly, and made into small balls, which are sold or exchanged for fish, rice, and various sorts of small grain. The wood is as hard and durable as teak, so that this is one of the most generally useful trees found on the continent of India.

Bassia latifolia, the *Mahwa*, *Madhaca*, or *Madhooka* *tree*, has oblong leaves, and a corolla with a very protuberant tube. It is a native of the mountainous parts of the Circars and of Bengal, where it forms a middling-sized tree. Its wood is hard and strong, and proper for the naves of wheels; its flowers are eaten raw by the natives and by jackals, and they yield by distillation a strong intoxicating spirit. From their seeds a considerable quantity of greenish yellow oil is obtained, which is found useful for the supply of lamps; it is, however, inferior to that of the last species. It is curious that this oil stains linen or woollen cloth as animal oil does, while the fatty substance of the *B. butyracea* possesses no such property, but when rubbed on cloth leaves no trace behind.

A fourth species is believed to be the *Shea-tree*, or African butter-plant, which is so very important an article of African internal commerce; and which it would apparently be extremely desirable to introduce into the West Indies and Bengal, as a new source of internal wealth. This is the plant which is frequently spoken of by Park, particularly at pages 202 and 203 of his *Travels in Africa*:—

'The people were everywhere employed in collecting the fruit of the shea-trees, from which they prepare a vegetable butter, mentioned in the former part of this work. These trees grow in great abundance all over this part of Bambarra. They are not planted by the natives, but are found growing naturally in the woods; and in clearing wood-land for cultivation every tree is cut down but the shea. The tree itself very much resembles the American oak, and the fruit, from the kernel of which, first dried in the sun, the butter is prepared, by boiling the kernel in water, has somewhat the appearance of a Spanish olive. The kernel is enveloped in a sweet pulp, under a thin green rind; and the butter produced from it, besides the advantage of its keeping the whole year without salt, is whiter, firmer, and, to my palate, of a richer flavour than the best butter I ever tasted made of cow's milk. The growth and preparation of this commodity seem to be amongst the first objects of African industry in this and the neighbouring states, and it constitutes a main article of their inland commerce.'

BASSIGNY, in France, a district partly included in the former province of Champagne, and partly in Le Barrois, now forming part of the department of Haute Marne. It was bounded on the north by the district of Vallage in Champagne, on the east by Le Barrois and La Franche Comté, on the south by Bourgogne, or Burgundy, and on the west by Champagne. It was, according to Expilly (*Dictionnaire des Gaules*, 1762), 16 leagues, or 44 miles long and 13 leagues, or 35 miles broad; but he does not state in what direction these dimensions were taken. The superficial contents he gives at 155 square leagues*, or 1184 square miles. In the *Dictionnaire Universel de la France*, the greatest length is given at 20 leagues, or 55 miles, from north to south, and the greatest breadth at 16 leagues, or 44 miles; and these dimensions are independent of a small portion of the district separated from the rest by a part of the province of Burgundy. Several important streams, as the Meuse and the Aube, take their rise in this district. The surface is varied with hills and plains. The air is temperate and healthy, and the soil produces corn, wine, and fruit. There is a considerable extent of wood, and good pasture land. Game, poultry, and fish are abundant.

There are the vestiges of several Roman roads in this country. In the time of the Romans, Bassigny was inhabited by the tribe of the Lingones, from whom the city of Langres derives its name. Langres (population in 1832, 5960 for the town, or 7460 for the commune) was considered as the capital, but Chaumont (population in 1832, 6104 for the town, or 6318 for the whole commune) disputed this title with it. The most important places after these are Montigny le Roi and Nogent le Roi (population in 1832, 2314 for the town, or 2401 for the whole commune), Le Val des Ecoliers, and Bourbon les Bains. The last-mentioned town contains about 3500 inhabitants, and is celebrated for its mineral waters, and its vast military hospital for more than 500 men. [See LANGRES, CHAUMONT, and BOURBON LES BAINS.] (*Dictionnaire Universel de la France*; Expilly, *Dictionnaire des Gaules, &c.*)

BASSO-RILIEVO. The Italian term basso rilievo, or the French bas-relief, is commonly applied to any work of sculpture connected more or less with a plane surface or background, and in this general sense is opposed to insulated detached figures, or sculpture in the round. In its more particular meaning basso-rilievo, low or flat relief, is usually appropriated to figures which have a very slight projection from the ground. Alto-rilievo, on the other hand, is not only rounded to the full bulk, but has generally some portions of the figures quite detached; and mezzo-rilievo (a style between the two), although sometimes rounded to a considerable bulk, has no part entirely unconnected with the plane surface or ground. A more accurate definition of the styles to which these designations refer will result from the explanations that follow. The terms used by the Greeks and Romans to distinguish these kinds of relief cannot perhaps be determined with complete accuracy; and it may be here remarked, that those writers are mistaken who suppose the word *Toreútike* (τορευτική) to have been applied by the Greeks exclusively to alto-rilievo, since Heyne, and indeed other writers before him, have proved that the term was appropriated to carving, and chiefly chasing in metal, in any kind of relief. The Latin word corresponding with it is *cælatura*. The Greeks seem to have employed the term *anaglypta* to denote works in relief in general; and the *ectypa sculptura* of Pliny (xxxvii. 10) also means work in relief. The term *glypta* (from γλύφω, *to cut into, to hollow out*), with other words formed from the same verb, appears to denote sculpture in the concave sense, intaglio. Herodotus, in a passage of his second book (cap. 138), where we have little doubt that he is speaking of the sunk Egyptian reliefs (which will be mentioned in another part of this article), couples a word formed from the verb γλύφω with the word typus (τύπος): typus itself (perhaps) always means a work in relief properly so called. (See Herod. iii. 88. Cicero ad Atticum, i. 10.) Italian writers of the time of Vasari, it appears, used the term mezzo-rilievo for the highest relief, basso-rilievo for the less prominent, and *stiacciato* for the flattest or least raised. Whatever the origin of this kind of sculpture may have been, and there is no doubt of its being very antient, an idea will be best formed of its style, as practised by the Greeks, by supposing it to be derived from the partial insertion of a statue in a perpendicular plane. Alto-rilievo is often literally nothing more than this. Applied, however, to a flat surface, the disposition of the limbs, and the actions of the figure become necessarily more or less parallel with that surface, in order sufficiently to adhere to it. The attitude is thus, in a certain degree, adapted or selected. In inserting or embedding a figure in a flat ground, it is obvious, that although it may be buried *less* than half its thickness, as in alto-rilievo, it cannot be buried *more*, nor indeed (the structure of the figure strictly considered) quite so much, without ceasing to present the real boundary or profile of the form. In the less prominent kinds of rilievo it is therefore still required that the outline should present the real form, and this principle in its further application excludes, in a great measure, the *unreal* forms of perspective and foreshortening, which would suppose that the objects are no longer parallel with the surface on which they are displayed. Attempts at foreshortening must in most cases fail to satisfy the eye. The work can only be seen in front, and the appearance it presents is therefore required to be at once intelligible, for no uncertainty can be removed by an inspection from another point of view, as in walking round a statue. The bulk, or thickness, need not, however, be real, provided it appear so. The compression of the bulk, which constitutes the various degrees of mezzo and basso rilievo, thus follows the compression or flattening of the action, the characteristic of alto-rilievo. Lastly, the modifications of which this branch of sculpture was susceptible, were adopted, as we shall see, according to the varieties of light, situation, dimensions, and use.

The Greeks, as a general principle, considered the ground of figures in relief to be the real wall, or whatever the solid plane might be, and not to represent air as if it was a picture. The art with them was thus rather the union of sculpture with architecture than a union of sculpture with the conditions of painting. That this was founded on the most rational principles will be evident from a few simple considerations. The shadows thrown by figures on the surface from which they project at once betray the solidity of that surface. In the attempt to represent, together with actual projection, the apparent depth of a picture, or to imitate space, figures which are supposed to be remote are reduced in size; but although thus diminished in form, they cannot have the strength of their light and shade diminished, and if deprived of shadow by inconsiderable relief, they cease to be apparent at all when the work is seen from its proper point of view, that is, at a sufficient distance; having no distinctness whatever in the absence of colour, but by means of light and shade. In short, the art, thus practised, has no longer an independent style, and only betrays its inferiority by presenting defects which another mode of imitation can supply. A passage in Vitruvius proves that the antients were not unacquainted with perspective; and the same author states that perspective scenic decorations were first employed by Agatharcus at Athens, in the time of Æschylus. However greatly the science may have been advanced by the moderns, this may be sufficient to prove that the absence of perspective in Greek bassi-rilievi was not from an absolute ignorance of its principles, but from a conviction that they would be misapplied in sculpture.

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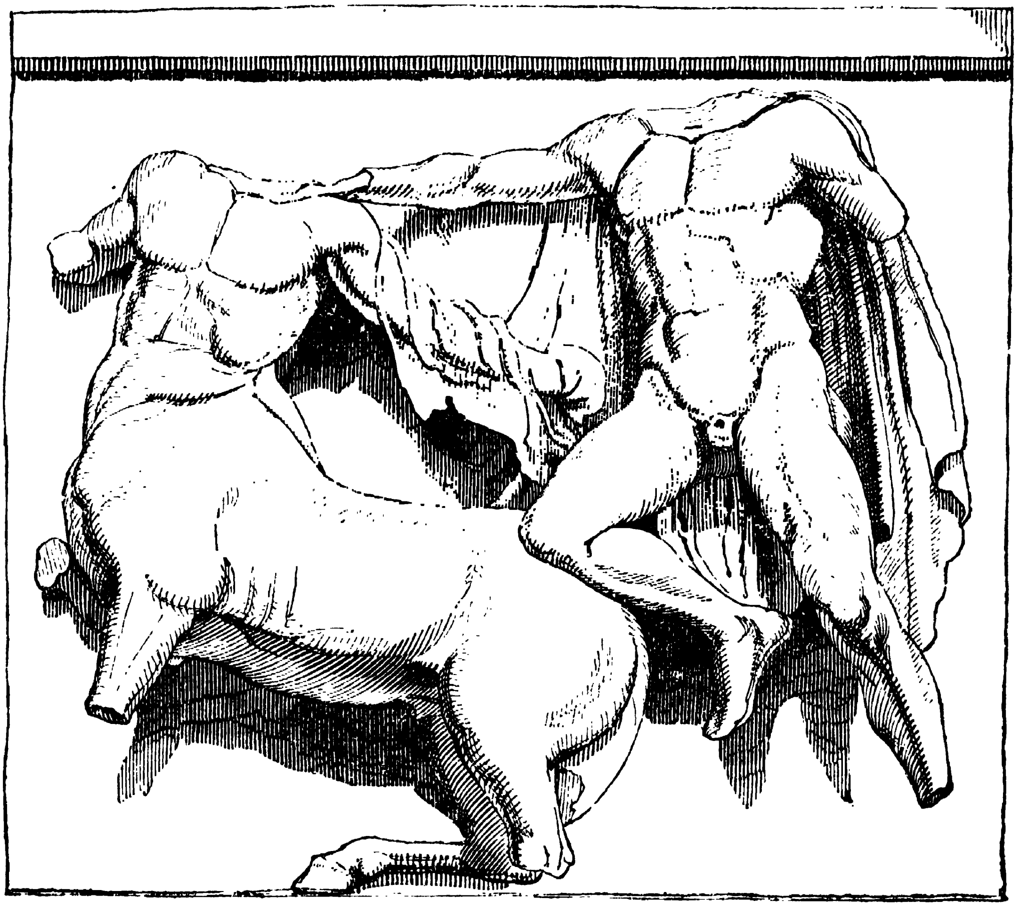
* The *lieue commune*, or common league of the French, is the twenty-fifth part of a degree.

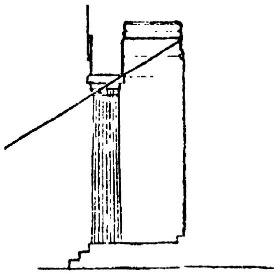
In carefully keeping within the limits, however narrow, which defined the style of rilievo, the great artists of antiquity failed not to condense into that style the utmost perfection compatible with it, while the various applications of the works suggested abundant variety in their treatment and execution. The British Museum contains unquestionably the finest existing specimens of this branch of sculpture in the rilievi which decorated the Parthenon, or Temple of Minerva, at Athens. We have here to consider the judicious adaptation of their styles for the situations they occupied; but in regard to their general excellence as works of imitation, it may also be well to remember that these sculptures were the admiration of the antients themselves. Seven hundred years after they were produced Plutarch spoke of them as 'inimitable works.'



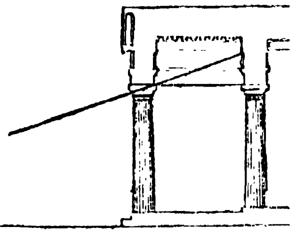
The figures which adorned the pediment are separate statues, although in their original situation, casting their shadows on the tympanum, they must have had the effect of bold alti-rilievi; the circumstance of their being thus completely detached must have given the greatest distinctness to their forms, and as they occupied the highest part of the building, their gigantic size and complete relief made them fully effective at a considerable distance. The sculptures which adorned the metopes, or spaces between the triglyphs, are in alto-rilievo. Those in the British Museum, representing combats with Centaurs, were taken from the south side of the building: the subjects were varied on the other sides, but they mostly related to the warlike exploits of the Athenians. It has been well observed that the subjects of combats, usually chosen for the metopes in Doric temples, afforded opportunities of composing the figures so as to produce diagonal lines, which effectually distinguished the groups from the architecture, and at the same time had the effect of reconciling the vertical forms of the triglyphs with the horizontal lines of the epistylium and cornice. The compositions in question all fully occupy the space destined for them, and are calculated, from their treatment and relief, to produce the utmost possible effect. Those works which received the open light were thus boldly relieved from their ground to insure the masses of shadow which make them conspicuous: the principle, applicable to external architecture, that projection commands shade, was thus extended to external decorations; and care seems to have been taken to keep the light on the figures as unbroken as possible, especially as the whole series of metopes occupying the external frieze was more or less crossed by the shadow of the cornice. This precaution necessarily limits the attitudes, for many actions equally natural with those adopted would have projected shadows on the figure itself, thus tending to confuse the forms. A statue which can be seen from various points, and sometimes in various lights, might thus be unfit as to its composition for that intelligible display in one view and under a constant light which rilievo requires. On the principle that high relief is fittest for the open light, the rilievi of the temple of Phigaleia, which are also preserved in the British Museum, are bold in their projections. These works adorned the interior of the cella, but as the temple was hypæthral, or lighted from the open sky, the principles of external decoration were applicable. Had the temple been imperfectly lighted, a flatter kind of relief would have been preferable, and this leads us to consider the style of basso-rilievo, properly so called, the most perfect existing specimen of which is also in the British Museum. It adorned the external wall of the cella of the Parthenon, within the peristyle or colonnade, and was consequently always in shade: the strongest light it could ever receive would probably be the reflection from the pavement below when the sun was highest; but as reflected lights are uncertain, and may proceed from various points, the sculptures in question were calculated to be equally distinct in whatever direction the light was thrown. Their great elevation, and the peculiar angle at which they were seen, owing to the narrowness of the space between the exterior columns and the cella, may also be mentioned in considering the reasons which rendered projection unadvisable. That this confined view was not, however, the sole reason, may appear from the bold relief of the Phigalcian marbles, which, in the interior of the narrow cella of the temple they adorned, must have been seen, on the side walls, at a very inconsiderable distance compared with their height. The Phigaleian temple was built, according to Pausanias, by Ictinus, the chief architect of the Parthenon; and although the sculptures are inferior, as works of art, to the generality of Greek specimens, their style of relief is precisely the point where the architect may be supposed to have influenced their execution.

As projection commands shade, so flatness commands light, and the flattest relief is hence fittest for an invariably dark situation. The same principle is observable in architecture in the treatment of mouldings in interiors, the form and projection of which differ materially from the corresponding members in the open light, and which are intended to be seen at a distance. The flatness which insures light would, however, be altogether indistinct and formless unless the outlines were clear and conspicuous at the first glance. The contrivance by which this is effected is by abruptly sinking the edges of the forms to the plane on which they are raised, instead of gradually rounding and losing them. The mass of the relieved figure being sometimes very little raised in its general surface, its section would thus almost present a rectangular projection. In many instances the side of this projection is even less than rectangular; it is undercut, like some mouldings in architecture which require to be particularly distinct, and thus presents a deeper line of shade. But if the figure can thus command distinctness of outline, notwithstanding the inconsiderable light it may receive, it is obvious that its lowness or flatness of relief will in such a light greatly aid its distinctness: above all, this contrivance gives the work thus seen in an obscure situation the effect of rotundity. Indeed, it is a great mistake to suppose that the flat style of relief was intended to appear flat, and it is a great mistake to apply it in situations, as in the open air, where it must appear so, and be indistinct besides. The conventions of the arts are remedies, adopted in certain situations and under particular circumstances, and are supposed to be concealed in their results: their ultimate resemblance to nature, and their successful effect in those circumstances, are the test of their propriety and necessity. The absence of all convention in alto-rilievo (as opposed to the flat style), thus fits it for near situations, if not too near to expose it to accidents. The excellent sculptures which decorate the pronaos and posticum of the Temple of Theseus, although under the portico, are in bold relief. They were not only nearer the eye, and seen at a more convenient angle than the flat rilievi of the cella of the Parthenon, but the reflected light which displayed them would necessarily be much stronger.

Lateral portico of the Parthenon.



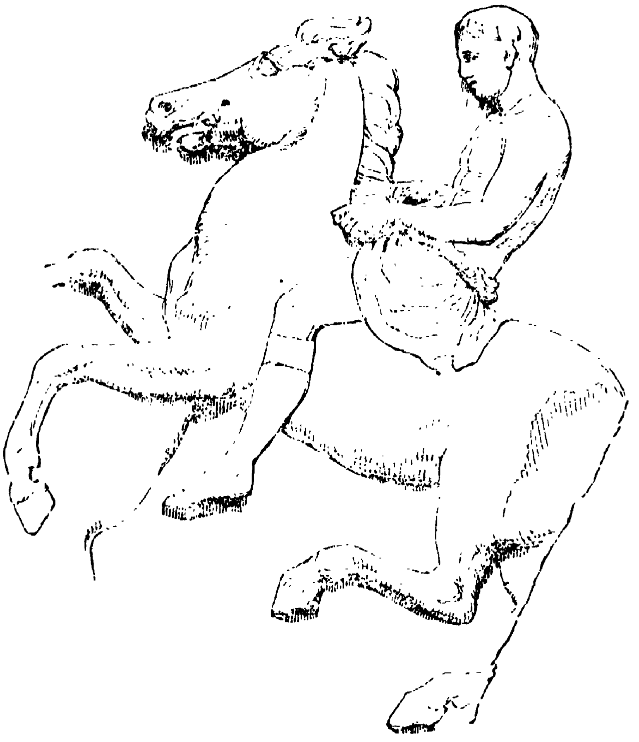
End portico of the Temple of Theseus.

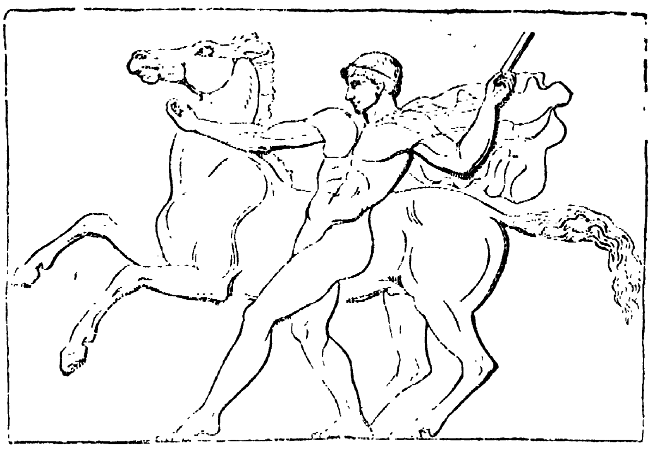


It is also to be remembered that only the end porticoes, where the sculpture could be more conveniently seen and was better lighted, were decorated with rilievi; the side walls of the cella were unornamented, and undoubtedly bold relief would have been less adapted for them. The Temple of Theseus was built about thirty years before the Parthenon; and it is not impossible that the satisfactory effect of the flat rilievi on the cella of the latter might have suggested a similar treatment, or some modification of it, in the Temple of Theseus, had it been erected later. It may be observed in general, that alto-rilievo can seldom be fit for interiors, not only from its liability to accident, but from the difficulty of displaying it by the full light which it requires. A superficial light, especially if in a lateral direction, necessarily throws the shadows of one figure on another. Instances of this occur in some of the palaces in Rome where works of sculpture have been injudiciously placed. A room, for example, lighted in the ordinary way will have its walls (at right angles with that occupied by the windows) adorned with a frieze in considerable relief; the figures nearest the light consequently project their shadows so as to half conceal the next in order.

The conditions of proximity and distance, as well as the quantity and direction of light, were carefully attended to by the Greek sculptors, and suggested new varieties of relief. The end of the art, as far as relates to execution, is accomplished when the work is distinct and intelligible at the distance whence it is intended to be viewed. Hence the conventions which are intended to correct the defects of distance, of material, want of light, &c., are evidently unnecessary where the work admits of close inspection. The style of mezzo-rilievo, which in its boldest examples presents about half the thickness of the figure, is, on many accounts, least fit for a distant effect: the figure is nowhere detached from its ground; at a very little distance its shadowed side is lost in its cast shade, and its light side in the light of its ground; the outline, in short, soon becomes indistinct; but the semi-roundness of the forms is directly imitative, and thus again the absence of all conventional treatment fits the work for near situations. The style was preferred to alto-rilievo in such cases, as the latter would have been more liable to accidents, and would besides in some measure deform the outline or profile of any object which is circular in its plan. The figures which adorn sculptured vases are thus in mezzo-rilievo: these works probably ornamented interiors where any indistinctness in their distant effect or in an unfavourable light might be obviated by closer inspection. Two specimens may be seen in the second room of the Gallery of Antiquities in the British Museum. The celebrated Mediceau and Borghesan vases, the finest known examples, are in like manner ornamented with mezzo-rilievo. The same consideration applies to all works, however unfit for a distant effect, which can, or in their original situation could, only be seen near. Even the mixed style of relief in the sculptures which occupy the internal sides of the Arch of Titus at Rome, would hardly be objected to, since the objects represented are distinctly seen, and can only be seen, at the distance of a few feet. The style of semi-relief (much purer than that of the Arch of Titus) adopted by Flaxman in front of Covent Garden Theatre may be defended on the same principle, since the utmost width of the street is hardly a more distant point than a spectator would naturally retire to in order to see them conveniently. The still flatter style which has been introduced on the exterior of several buildings in London cannot, however, be defended on any grounds; and there can be no doubt, from the reasons adduced, that bold relief is generally fittest for the open light. The mezzi rilievi on the miniature choragic monument of Lysicrates (casts from them are in the British Museum) may be admitted to have been fitly calculated for their situation because they must have been seen near; but there was in this case an additional consideration to be attended to; the building is circular, and alto-rilievo was avoided in order to preserve the architectural profile: on the other hand, the frieze of the small temple of Victory, which was rectangular, was adorned with alti-rilievi; and in this case it appears that they did not even extend to the angles. The objections to sculpture on monumental columns will be obvious from these considerations; it has been observed, that in attempting to preserve the architectural profile, as in the Trajan column, and its modern rival in the Place Vendôme at Paris, the sculpture thus slightly relieved soon becomes indistinct, nor indeed would this indistinctness be obviated at a considerable height even by alto-rilievo, the figures being necessarily small, while the evil is only increased by substituting the dark material of bronze for marble.

We proceed to consider the varieties of style in this art as affecting composition. In rilievo, and in sculpture generally (a colourless material, or a material of only one colour being always supposed), it is evident that shadow is the essential and only source of meaning and effect. In works placed in the open air, and visible in one point only, as in the case of alto-rilievo, a certain open display of the figure is generally adopted; the shadows, or rather the forms which project them, are so disposed as to present at the first glance an intelligible and easily recognised appearance, and the impossibility of changing the point of view, or changing the light, as before observed, limits the attitudes more than in a statue, and, as will also appear, more than in a basso-rilievo. For in the latter, however distinct the outline is in which the chief impression and meaning of the figure reside, the shadows within the extreme outlines are in a great measure suppressed; it is, in fact, by their being so suppressed that the general form becomes so distinct. This is also the case when one form is relieved on another; it will be seen that the nearest object is very much reduced and flattened in order that its shadow may not interfere with the more important shadows of the outlines on the ground, and hence it may often happen that the nearest projection is least relieved. It will thus be evident that, owing to this power of suppressing the accidental shades and preventing them from rivalling or being confounded with the essential ones, the choice of attitudes becomes less limited, and many a composition which in full relief would present a mass of confusion from its scattered and equally dark shades, may be quite admissible and agreeable in basso-rilievo. Accordingly the attitudes of statues, which are generally unfit for alto-rilievo, frequently occur in the flat style. Visconti even supposes that certain figures in the bassi-rilievi of the Parthenon suggested the attitudes of celebrated statues afterwards executed; as, for instance, the Jason, or Cincinnatus, and the Ludovisi Mars. As a remarkable proof how much the attitudes were limited in alto-rilievo compared with the flat style, it may be observed, that the contrasted action of the upper and lower limbs, which gives so much energy and motion to the figure, is perhaps never to be met with in the fine examples of alto-rilievo, whereas in the flat style it is adopted whenever the subject demands it. In the annexed sketch of an early Greek basso-rilievo, representing Castor managing a horse (from the third room of the gallery of the British Museum), the action of the upper and lower limbs is contrasted, as is the case in all statues which are remarkable for energy and elasticity of movement: the statue called the Fighting Gladiator may be quoted as a prominent example. This disposition of the lower limbs, or the alternate action in which one of the arms would cross the body, never occurs in alto-rilievo, because the shadow of the arm on the body or of one of the lower limbs on the other could then no longer be suppressed, as it is in this case, but would rival the shadows of the whole figure on the ground. Among the metopes of the Parthenon, the Phigaleian marbles, and the altirilievi of the Temple of Theseus, there is not a single instance of the contrasted action alluded to; while in the two latter examples, the contrary position, or open display of the figure, repeatedly recurs, even to sameness. It must however be admitted, that this open display of the figure, although not presenting the most energetic action, is as beautiful as it is intelligible, and hence the finest exhibitions of form were quite compatible with the limited attitudes to which the sculptors thus wisely confined themselves. The objections which compelled this limitation being however entirely obviated in basso-rilievo, by the power of suppressing at pleasure the shadows within the contour, we find the fullest advantage taken of the latitude which was thus legitimately gained.

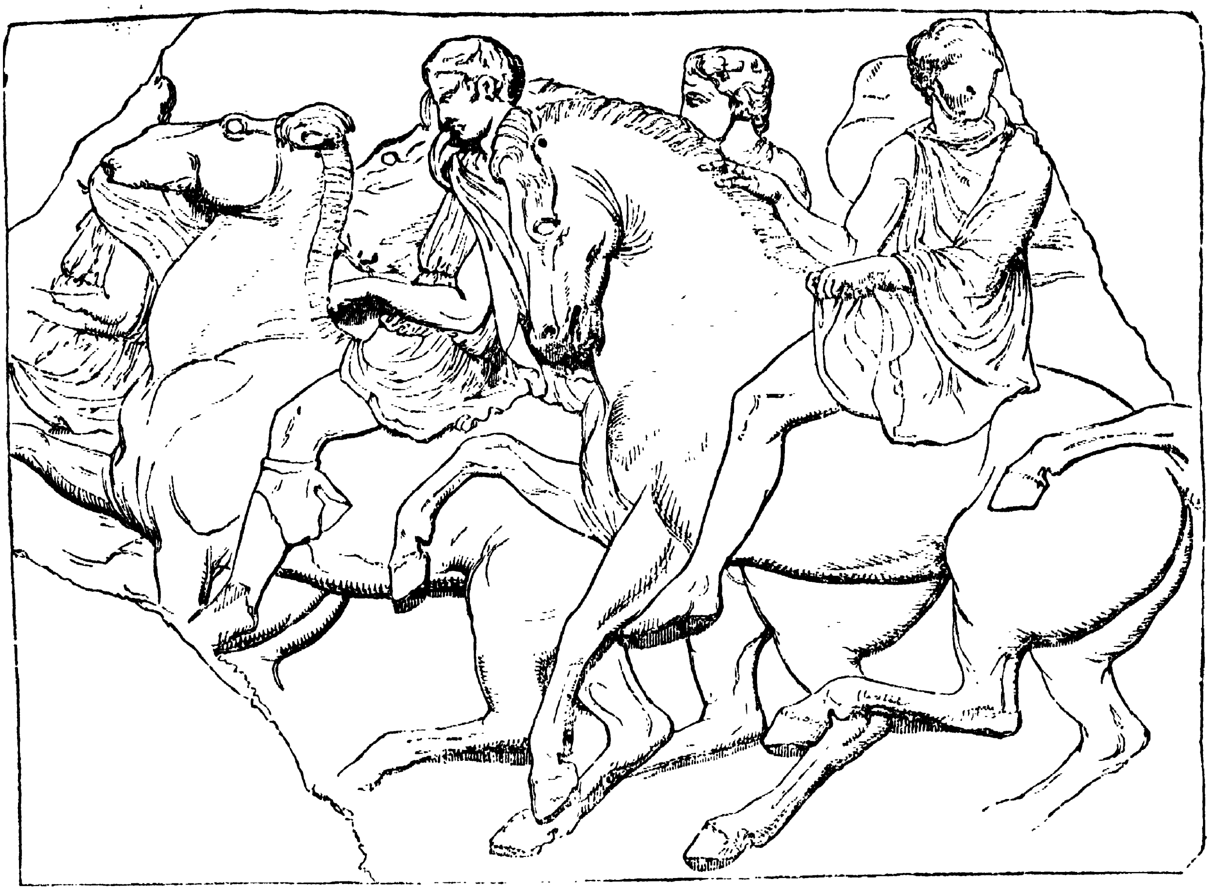




A better example cannot be referred to than the flat rilievi already mentioned from the cella of the Parthenon. (See the next illustration.) The subject represents the Panathenaic procession, and although no perspective diminution is admitted, several equestrian figures are sometimes partly relieved one upon the other. The confusion which results from the number of similar forms in the repetition of the horses' limbs, as well as in the actions of the horsemen, must be admitted; but perhaps the subject is thus better expressed than by a simpler arrangement, and this treatment contrasts finely with the single figures. In a procession of horsemen moving two or three abreast, we are at once aware that the figures are similar, and the eye is satisfied, as it would be in nature, not in searching out each individual figure as if it had a separate principle of action, but in comprehending the movement and the mass, for one indicates the whole. Where the figures thus cross each other they are treated as a mass; the outline of the whole group is distinct and bold, being more or less abruptly sunk to the ground, but the outlines which come within the extreme outline are very slightly relieved. In short, the principle here applied is precisely the same as that observable in a single figure in the same style of relief: the outline of the whole form is distinct, or rather most distinct where it is most important, and the internal markings are seldom suffered to rival it, but are made subservient to this general effect. The relative importance of the objects is, indeed, the only consideration which is suffered to interfere with this principle: thus loose drapery is sometimes slightly relieved on the ground, while a significant form is now and then strongly relieved even on another figure. In comparing the slight varieties of treatment in these rilievi, it is to be remembered that the end porticoes were a little wider than the lateral colonnades. It is undoubtedly to this circumstance that the difference of treatment alluded to is to be referred; the figures in the end friezes are more separated from one another, and consequently somewhat more relieved than the compact processions on the side walls.

The fact that these bassi-rilievi, as well as most of the sculpture of the antients, were partially painted, has been purposely left out of the account, because the very contrivances resorted to are calculated to supply the absence of colour. The custom in the best age of Grecian art of painting architecture and sculpture may be defended or excused elsewhere; it may be, however, here remarked, that while the antient sculptors added colour after having employed every expedient which could supply its want, the moderns, in altogether rejecting it, often fail to make use of those very conventions which its absence demands.

It appears that the principle of suppressing the relief within the extreme contour which, with the strong marking of the outline itself, mainly constitutes the style of basso-rilievo, was employed by the antients in works of considerable relief, in interiors, in particular lights, and probably



at some distance or elevation. The real projection which works thus strictly belonging to the class of bassi-rilievi may sometimes present, points out the essential difference between basso and mezzo rilievo: a work, even if in very slight general relief, which has the parts that are nearest the most relieved, belongs to mezzo-rilievo; while a work which has the nearest parts least relieved, constitutes basso-rilievo, whatever its general projection may be. In the former, the outline is thus less apparent than the forms within it; in the latter, the outline is more apparent than the forms within it. The early Greek and Etruscan rilievi, which, however flat, have the nearest parts the fullest, while the outline is scarcely, if at all, rectangular in its section, have thus the principle of mezzo-rilievo. They are even fitted for near inspection, and cannot be said to present any unsatisfactory convention: for the bulk, however really thin, is proportionate in its relief, and is so far directly imitative: inasmuch as the eye consents to a diminished scale of bulk as easily as to a diminished scale of height, while the indistinctness of the outline has the effect of rounding the form. Such works are besides fitted for near examination, because they can scarcely command any shadow. Various specimens may be seen in the British Museum.

The antique vases of Arezzo were ornamented with figures in this kind of relief. Certain silver vases mentioned by Pliny were of the same description. The Egyptian intaglio, for so it may be called, rather than rilievo, belongs to the same style. The Egyptian artists, instead of cutting away the background from the figure, sunk the outline, and slightly rounded the figure, on the principle of mezzo-rilievo, within. Thus no part of the work projected beyond the general surface, and the architectural profile was preserved. There are, however, many very antient examples at Thebes of figures slightly relieved from the ground, somewhat on the principle of basso-rilievo as practised by the Greeks, that is, with the nearest parts least relieved, and with outlines rectangular in the section. Many of them, probably, in their original situations, and when the buildings were entire, ornamented interiors. Some Persian rilievi, in the British Museum, approach the same style. The Egyptian rilievi were painted in brilliant colours, and would have been ineffective in the open light without such an addition.

The distinctions of the three styles of relief, according to the Greek examples, may now be thus recapitulated. In the highest relief, however decided the shadows may and must of necessity be, on the plane to which the figure is attached, the light on the figure itself is kept as unbroken as possible, and this can only be effected by a selection of open attitudes; that is, such an arrangement of the limbs as shall not cast shadows on the figure itself. In basso-rilievo the same general effect of the figure is given, but by very different means: the attitude is not selected to avoid shadows on the figure, because, while the extreme outline is strongly marked, the shadows within it may be in a great measure suppressed, so that the choice of attitudes is greater. Mezzo-rilievo differs from both: it has neither the limited attitudes of the first, nor the distinct outline and suppressed internal markings of the second: on the contrary, the outline is often less distinct than the forms within it, and hence it requires, and is fitted for, near inspection. Its imitation may thus be more absolute, and its execution more finished, than those of either of the other styles.

Most of the coins of antiquity are executed on the principle of mezzo-rilievo; and though often far bolder in this relief than modern works of the kind, are treated in a mode corresponding with their minute dimensions, which require close examination. The outline thus gradually rounds into the ground, and is never abruptly sunk, while the nearest parts are most relieved. Thus, conventional methods are always wanting in works that admit of close inspection, where the eye can be satisfied without such expedients. The comparatively strong relief of the heads on the antient medals is again a contrivance for their preservation, and presents a new variety in the style of rilievo. Coins are exposed to friction, and the forms they bear are thus liable to be soon effaced. The earliest means adopted to prevent this was by sinking the representation in a concavity, in which it was thus protected. This plan was soon abandoned, for obvious reasons; and the method ultimately adopted was that of raising the least important parts most. Accordingly, the parts that are rubbed away in many fine antique coins are precisely those which can best be spared; the hair has generally a considerable projection, so that the face and profile are often perfectly preserved after 2000 years: a better specimen cannot be adduced than the celebrated Syracusan coin representing the head of Arethusa or Proserpine. In addition to the propriety of its style, this head is remarkable for its beauty; and is classed by Winkelmann among the examples of the highest character of form.

diate cause of his incurring the cardinal's displeasure was, as he tells us in his *Mémoires*, his neglecting to keep an appointment to dinner. On the day preceding the memorable *Day of the Dupes* (la Journée des Dupes), the 30th of November, 1630, Bassompierre met the cardinal in one of the passages of the Louvre. He accosted him, and Richelieu feigned to receive the courtesy as a favour to a 'poor disgraced minister.' Bassompierre, in the fulness of his benevolence, condescended to invite himself to dine with the cardinal, and the offer was accepted. It happened, however, unfortunately that two noblemen, enemies of the cardinal, met Bassompierre in the course of the day, and 'debauched' him to dine with them, and the 'poor disgraced minister' was forgotten.

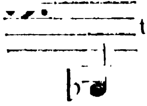
On the 23rd of February, 1631, Bassompierre was arrested, by Richelieu's orders, and sent to the Bastille, where he was confined for twelve years; that is, till the death of the cardinal. He tells us, that the day before he was arrested he burned upwards of 6000 love-letters which he had received at different times from his female admirers—a pretty decisive proof of the reputation which induced Madame de Montpensier, when recalling the brilliant visions of her youth, to designate him as 'cet illustre Bassompierre.' (See the Preface to the translation of *Bassompierre's English Embassy*, ascribed on personal knowledge by Mr. D'Israeli to the Right Hon. J. W. Croker.)

He employed his time during his imprisonment in writing his *Mémoires* and revising his *Ambassades*; but both are so very dull and jejune, that we cannot help regarding him as one of those men whose fame has been mainly owing to the advantages of a good person and address. There is not a single passage in all his writings which would lead us to conclude that he was 'the wittiest man of his time;' and even those anecdotes and *bons mots* which are attributed to him in the French *Ana*, are not calculated to impress us with a high notion of his mental accomplishments.

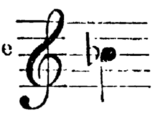
Bassompierre died of apoplexy on the 12th of April, 1646, three years after his liberation from prison. It is alleged that he was offered the guardianship of the young monarch Louis XIV., but age, or, as Mr. Croker conjectures, the wholesome discipline of the Bastille,' had cured him of all ambition as a courtier, and he declined the perilous honour.

(*Mémoires de Mareschal de Bassompierre*, 4 tomes, Amsterdam, edition 1723; Bassompierre's *Embassy to England*, translated, with notes, London, 1819; *Memoirs of Henry the Great of France*, 2 vols. London, 1829; and the works referred to in the text.)

BASSOON, a musical instrument of the pneumatic kind, blown through a reed. It consists of four pieces, or tubes of wood, bound together and pierced for ventages, of a brass craned neck, in which the reed is inserted, and of several keys. The whole length of the tubes is 6½ feet, but by doubling up, this is reduced to four. It may be considered as a base oboe [see Oboe]; and its compass is from B flat below the base staff,



to B flat in the treble staff.



This instrument is used in every kind of music, for the richness of its tone and extent of its scale render it invaluable to the composer. Handel seems to have been the first who gave importance to it, and in the air *Thou didst blow*, in the oratorio of *Israel in Egypt*, exhibited its qualities in so advantageous a manner, that it immediately afterwards began to assume a rank in the orchestra which has ever since been increasing.

The bassoon was invented as early as the year 1539, three years after Luscinius had published his *Musurgia*, who consequently does not mention the instrument. Mersenne describes it and all its varieties; but a long time elapsed before it came into use. The word is derived from the Italian *bassone*, which is now rarely used. The common Italian term is *fagotto*, a fagot, or bundle of sticks, because the tubes of which the instrument is composed are bound together. The Italian word *fagotto* is always employed in musical scores.

BASSOON, DOUBLE, a bassoon of increased dimensions, the scale of which is an octave below that of the ordinary bassoon. The double-bassoon was introduced at the commemoration of Handel in 1784, but not found to answer the intended purpose, and has now fallen into utter disuse, the Serpent [see Serpent] well supplying the place which it was meant to fill.

BASSORAH. [See Basra.]

BASSUS, in entomology, a genus of the order *Hymenoptera*, and family *Braconidæ*. These are four-winged flies, with long and narrow bodies. They frequent the flowers of umbelliferous plants.

BAST, FREDERICK JAMES, a scholar of considerable eminence, was born in the state of Hesse-Darmstadt, about the year 1772. He received his earliest instruction from his father at Bouxviller, but afterwards studied in the University of Jena, under Professors Griesbach and Schütz.

His first literary essay was a commentary upon Plato's *Symposion*, which was followed in 1796 by a specimen of an intended new edition of the Letters of Aristænetus. He lived at this time at Vienna, where he was in the suite of M. de Jan, the resident from Hesse-Darmstadt; and where, in the Imperial Library, he had found a manuscript of Aristænetus, which afforded most important readings for improving the text of that author.

The landgrave of Hesse-Darmstadt afterwards made him secretary of legation at the congress of Radstadt; and finally placed him in the same capacity with the Baron de Pappenheim, his minister at Paris. To mark his approbation of Bast's literary studies, the landgrave also bestowed upon him the reversion of the keepership of the Library of Darmstadt, a post which he preferred to more brilliant honours that he might have claimed, but which were less suited to his literary taste.

Bast, uniting the labours of philology with those of diplomacy, profited very much during his stay in Paris by the collation and copying of a considerable number of Greek manuscripts. It was a most advantageous residence for him, as the best classical treasures of the Vatican had at that time been recently transported to France.

Of the importance of his critical researches some estimate may be formed from his *Lettre Critique à M. J. F. Boissonade sur Antoninus Liberalis, Parthenius, et Aristénète*, 8vo. Paris, 1805. This work, of rather more than 250 pages, was originally intended for insertion in Millin's *Magasin Encyclopédique*, and was on that account written in French, but growing upon the author's hands, it became a book, and stands in the first rank of treatises on verbal criticism. It was in a volume of the Vatican, No. 398 of the Greek manuscripts, which had once belonged to the electoral library at Heidelberg, that he found the manuscripts of Antoninus Liberalis and Parthenius; and the same volume contained seventeen other manuscripts, some of them inedited, of each of which, in the *Letter to M. Boissonade*, Bast has given a notice.

Schæfer's edition of Gregorius of Corinth, and some other grammarians, published at Leipzig, 2 vols. 8vo. 1811, contains Bast's Notes on that author, with a Palæographical Dissertation (accompanied by seven Plates of fac-similes from Greek manuscripts), which is considered to be a master-piece of erudition. The remarks of Bast relative to the various kinds of connections and contractions which he met with in the numerous MSS. which he consulted, have been extracted from the body of his works by John Hodgkin, the editor of the *Calligraphia et Pœcilographia Græca*, and will shortly be published for the use of those who are engaged in the labour of reading or collating Greek MSS.

Bast died of apoplexy at Paris, Nov. 15, 1811. His Notes upon Aristænetus were published in a variorum edition of that author by his friend M. Jo. Fr. Boissonade, 8vo. Lutetiæ, 1822. (See the *Biographie Universelle, Supplem.* tom. lvii. 8vo. Paris, 1834, and the works above quoted.)

BASTAN. [See Baztan.]

BASTARD. The conjectures of etymologists on the origin of this word are various and unsatisfactory. Its root has been sought in several languages:—the Greek, Saxon, German, Welsh, Icelandic, and Persian. For the grounds on which the pretensions of all these languages are respectively supported, we refer the curious to the glossaries of Ducange and Spelman, the more recent one of Boucher, and to the notes on the title Bastard in Dodd and Gwillim's edition of Bacon's Abridgment, vol. i. p. 746.

Among English writers it is applied to a child not born in lawful wedlock; and as such he is technically distinguished from a *mulier* (*filius mulieratus*), who is the legitimate offspring of a *mulier* or married woman.

Our ancestors very early adopted strict notions on the subject of legitimacy; and when the prelates of the 13th century were desirous of establishing in this country the rule of the canon law, by which spurious children are legitimated upon the subsequent intermarriage of their parents, the barons assembled at Merton (A.D. 1235) replied by the celebrated declaration, 'that they would not consent to change the laws of England hitherto used and approved.'

It has been observed that this sturdy repugnance to innovation was the more disinterested, inasmuch as the lax morality of those days must probably have made the proposition not altogether unpalatable to many to whom it was addressed. The opposition, therefore, seems to have been prompted by a jealousy of ecclesiastical influence which was at that time ever watchful to extend the authority of the church by engrafting on our jurisprudence the principles of the Canon Law.

On another point our ancestors were less reasonable; for it was very early received for law not only that the fact of birth after marriage was essential to legitimacy, but that it was conclusive of it. Hence it was long a maxim that nothing but physical or natural impossibility, such as the continued absence of the husband beyond seas, &c., could prevent the child so born from being held legitimate, or justify an inquiry into the real paternity.

Their liberality in the case of posthumous children was also remarkable: for in the case of the Countess of Gloucester, in the reign of Edward II., a child born one year and seven months after the death of the duke, was pronounced legitimate; a degree of indulgence only exceeded by the complaisance of Mr. Serjeant Rolfe, in the reign of Henry VI., who was of opinion that a widow might give birth to a child at the distance of seven years after her husband's decease, without wrong to her reputation. (See Coke upon Littleton, 123, b. note by Mr. Hargrave; Rolle's *Abridgment, Bastard;* and Le Marchant's *Preface to the case of the Banbury Peerage.*)

The law now stands on a more reasonable footing, and the fact of birth during marriage, or within a competent time after the husband's death, is now held to be only a strong presumption of legitimacy, capable of being repelled by satisfactory evidence to the contrary.

Another curious position of doubtful authority is also found in our old text writers; namely, that where a widow marries again so soon after her husband's decease that a child born afterwards may reasonably be supposed to be the child of either husband, then the child, upon attaining to years of discretion, shall be at liberty to choose which of the two shall be accounted his father. It was to obviate this embarrassing state of things that the civil law prescribed an '*annum luctûs*,' or year of grief, during which the widow was prohibited from contracting a second marriage; and our own law provided the now obsolete proceeding on a writ *de ventre inspiciendo.*

The legal incapacities under which an illegitimate child labours by the law of England are few, and are chiefly confined to the cases of inheritance and succession. He is regarded for most purposes as the son of nobody, and is therefore heir-at-law to none of his reputed ancestors. He is entitled to no distributive share of the personal property of his parents, if they die intestate; and even under a will he can only take where he is distinctly pointed out in it as an object of the testator's bounty, and not under the general description of 'son,' 'daughter,' or 'child,' by which legitimate children alone are presumed to be designated. He may, however, acquire property himself, and thus become the founder of a fresh inheritance, though none of his lineal descendants can claim through him the property of his reputed relations. If he dies without wife, issue, or will, his lands and goods escheat to the crown, or lord of the fee. In the former event it is usual for the crown to resign its claim to the greater part of the property on the petition of some of his nearest *quasi* kindred.

Strictly speaking, a bastard has no surname until he has acquired one by reputation, and in the meantime he is properly called by that of his mother.

The first English statute which provides for the maintenance of illegitimate children, is the 18th of Elizabeth, cap. 3, which confers on justices of the peace the power of punishing *the parents, and of requiring from one or both of them* a weekly or other payment for their support. Under this and later acts of parliament, the usual practice has been for the mother to apply for relief to the parish officers, by whom she is carried before certain magistrates to be interrogated respecting the paternity of the child. An order of filiation is then made, in which the male offender is adjudged to be the reputed father, and is ordered to contribute a weekly payment, or is bound to indemnify the parish against the future expenses of maintenance.

In this state of things, the commissioners lately appointed by his Majesty to inquire into the administration of the poor-laws, recommended the total abolition of punishment, and the exemption of the reputed father from all liability to the support of the child. The proposal was supported by arguments not devoid of plausibility, and is said to be sanctioned by the favourable experience of other countries; it was however strenuously opposed in both Houses of Parliament, and was eventually so modified as to leave the law nearly as it stood before the passing of the late act. (See the *Report of the Commissioners*, p. 165, 343, 8vo. ed., and stat. 4 and 5 Will. IV., chap. 76.)

According to late official tables, the proportion of illegitimate to legitimate births was in the year 1830 as one to twenty in England; the proportion in France is as one to thirteen, and in Paris alone as one to three. The proportion in Wales was as one to thirteen in the year 1830; but in no city or town in the British islands is the proportion comparable with that of Paris. In Denmark the illegitimate are one in ninety-six; in Norway one in fourteen; and in Hamburgh one in five. (*Reports of Poor-Law Commissioners.*)

The civilians and canonists distinguish illegitimate children into four or five classes not recognised in the English law; it may however be worth while to remark, that the familiar term *natural*, applied by us to all children born out of wedlock, is in that classification confined to those only who are the offspring of unmarried parents, living in concubinage, and who labour under no legal impediment to intermarriage. Children of the last-mentioned class are, by the civil and canon law, capable of legitimation by the subsequent union of the parents, or by other acts which it is needless here to particularize. (See Heineccius, *Syntag*, vol. i., p. 159; Ridley's *View*, &c., p. 350, ed. 1675; Godolphin's *Repertorium Canonicum*, chap. 35.)

By the Athenian law (passed in the archonship of Eucleides, B.C. 403), as quoted by Demosthenes (*Against Macartatus*, cap. 12), illegitimate children were cut out from all inheritance and succession: nor could a man, who had legitimate male offspring, leave his property to other persons, and consequently not to his illegitimate children. A previous law of Pericles (see his *Life* by Plutarch, cap. 37) declared that those only were legitimate and Athenian citizens who were born of two Athenian parents. This law, which was repealed or violated in favour of a son of Pericles, was re-enacted in the archonship of Eucleides. (Athenæus, xiii. 577. Demosthenes *Against Eubulides*, cap. 19.)

The repute in which spurious children have been held has varied in different ages and countries. In some they have been subjected to a degree of opprobrium which was inconsistent with justice; in others the distinction between base and legitimate birth appears to have been but faintly recognised, and the child of unlicensed love has avowed his origin with an indifference which argued neither a sense of shame nor a feeling of inferiority. When the Conqueror commenced his missive to the Earl of Bretagne by the words, 'I, William, surnamed the Bastard,' he can have felt no desire to conceal the obliquity of his descent, and little fear that his title would be defeated by it. Accordingly, history presents us with many instances in which the succession not only to property, but to kingdoms, has been successfully claimed by the spurious issue of the ancestor. It is, however, very improbable that in any state of society where the institution of marriage has prevailed, children born in concubinage and in lawful wedlock should ever have been regarded by the law with exactly equal favour. (See Ducange, *Glossary*, tit. *Bastardus.*)

Those who may be curious to learn what fanciful writers have urged in proof of the superior mental and physical endowments of illegitimate issue, may refer to Burton's *Anatomy of Melancholy*, vol. ii., p. 16 (ed. 1821); Pasquier *Recherches*, chap. 'De quelques memorables bâtards;' and Pontus Heuterus *de Liberâ Hominis Nativitate.* See also Shakspeare's *Lear*, act 1, scene 2; and the observations of Dr. Elliotson in his edition of Blumenbach's *Physiology*, in notes to chap. 40.

BASTARDY. The Scottish law of Bastardy differs considerably from the English, chiefly in consequence of its having adopted much of the Roman and pontifical doctrines of marriage and legitimacy.

Thus, in England, in the case of a divorce in the spiritual court, '*à vinculo matrimonii,*' the issue born during the coverture are bastards. But agreeably to the judgment of the canons, *Decret. Greg.*, lib. iv., tit. 17, c. 14, the Scottish writers, proceeding on the *bona fides* of the parties, incline to a different opinion, *in favorem prolis;* and it will be recollected that when Secretary Lethington proposed to Mary Queen of Scots a divorce from Darnley, James Earl of Bothwell, to quiet her fears for her son, 'allegit the exampill of himself, that he ceissit not to succeid to his father's heritage, without any difficultie, albeit thair was divorce betwixt him and his mother.' The point has not, however, received a judicial determination, and cannot therefore be regarded as settled, though of the tendency of the law there can be little doubt. Even in the case of a marriage between a party divorced for adultery and the adulterer, which by stat. 1600, c. 20, following the civil law, is declared 'null and unlawful in itself, and the succession to be gotten of sik unlawful conjunctions unliable to succeid as heires to their said parents;' the issue are not accounted bastards, 'though,' as Stair adds, b. iii., tit. 3, sect. 42, 'they may be debarred from succession.' Of course, the issue of every legal marriage are lawful, and therefore the children not only of marriages regularly solemnized, but also of every union acknowledged by the law as a marriage, are alike legitimate. The same may be said of children legitimated by the subsequent intermarriage of their parents; but the situation of these is, as we shall immediately see, somewhat anomalous.

The Scottish law has adopted two species of legitimation, which, in the language of the civil law, they call legitimation *per subsequens matrimonium*, and legitimation *per rescriptum principis*.

The former of these was introduced into the Roman jurisprudence by a constitution of the Emperor Constantine the Great, but did not become a permanent method of legitimation till the time of Justinian. It was afterwards taken up by the Roman pontiffs and disseminated by the ecclesiastics throughout Europe. At the parliament of Merton, however, the doctrine met with a repulse from the barons of England.

Though the English law was preserved inviolate, yet the ecclesiastics did not cease to press the point among the people, and to this day we may remark traces of the custom in some of the remoter districts of the island. The doctrine was certainly no part of the antient common law of Scotland any more than of England; but it is now settled law there, and its rise and establishment are at once accounted for, when we consider the former strong or rather paramount influence of the canon and civil laws in that country. The principle on which the doctrine rests is the fiction of law that the parents were married at their child's birth. If therefore the parents could not have then legally married, or if a mid impediment has intervened between the birth and the intermarriage, the fiction is excluded, and previous issue will not be legitimated by marriage. Further, it is held that if the child was born, or if the intermarriage took place, in a country which does not acknowledge the doctrine of legitimation by subsequent marriage, the child will remain a bastard; the character of bastardy being in the one case indelible, and the marriage in the other ineffectual to create legitimacy. On the other hand, a child legitimated *per subsequens matrimonium* is entitled to all the rights and privileges of lawful issue, and will, as respects inheritance and the like, take precedence of subsequent issue born in actual wedlock: yet in England the judges have held, that a child born in Scotland before marriage and legitimated in Scotland by subsequent marriage, though in point of fact the first-born son, and in status and condition, by comity, legitimate in England, will not succeed to land in England. (See Doe dem. Birtwhistle *v.* Vardill, 5 Barn. and Cress. 438; and opinions of the judges in dom. proc. 10th June, 1830.)

Legitimation *per rescriptum principis* proceeds on a less abstract and more generally-acknowledged principle than the preceding. Though therefore it is said to have been invented by Justinian, and copied by one of the popes of Rome, yet concessions in the nature of letters of legitimation are not peculiar to the Roman law. The form of these letters seems to have been borrowed by the Scots immediately out of the old French jurisprudence: their clauses are usually very ample, capacitating the grantee for all honours and offices whatsoever, and to do all acts in judgment or outwith, and, in short, imparting to him all the public rights of lawful children and natural born subjects, together with a cession of the crown's rights by reason of bastardy; but as the crown cannot affect the rights of third persons without their consent, letters of legitimation do not carry a right of inheritance to the prejudice of lawful issue.

As, in the Mosaic law, a bastard was debarred from the congregation, so, according to the canons, he is, in strictness, incapable of holy orders; and, indeed, it has been the policy of most nations to incapacitate bastards in divers ways, that if men will not be deterred from immorality by a sense of the injury accruing to themselves, they may by a consideration of the evils resulting to their offspring. But whatever may be the operation of those incapacities, they are felt by all to be wrongs inflicted on the innocent, and as Justinian properly observed when he made legitimation *per subsequens matrimonium* a perpetual ordinance, 'indigni non sunt qui alieno vitio laborant.' Accordingly the doctrine is now obsolete in England and nearly so in Scotland. The only remaining incapacity in Scotland seems to be want of power to make a testament in the particular case of the bastard having no lawful issue. Letters of legitimation were formerly necessary in all cases; but it is now held that as the crown's right of succession is excluded by the existence of issue, a bastard who has lawful issue may dispose of his goods by testament in any way he thinks fit. With the above exception only, then, there is no distinction between a bastard and another man; and so he may dispose of his heritage *in liege poustie*, and of his moveables *inter vivos*, and (if he has lawful issue) by testament, and he may succeed to any estate, real or personal, by special destination. To his lawful children also he may appoint testamentary guardians; and his widow has her provisions like other relicts. It is to be noted, however, that in the eye of law a bastard is *nullius filius;* and being thus of kin to nobody, he cannot be heir-at-law to any one, neither can he have such heirs save his own lawful issue. Where a bastard dies, leaving no heir, the crown, as *ultimus hæres*, takes up his property, which, if it be land holden in capite, is at once consolidated with the superiority; but if it be holden of a subject, the crown appoints a donatary, who, to complete his title, must obtain decree of *declarator of bastardy*, a process in the nature of the English *writ of escheat*, and thereupon he is presented by the king to the superior as his vassal.

But though bastards are legally *nullius filii*, yet the law takes notice of their natural relationship to several purposes, and particularly to enforce the natural duties of their parents. These duties are comprised under the term *aliment*, which here, as in the civil law, comprehends both maintenance and education; including under this latter term, as Lord Stair says (b. 1, tit. 5, sec. 6), 'the breeding of them for some calling and employment according to their capacity and condition.' These were at least the principles on which the courts proceeded in awarding aliment to children. In determining who is the father of a bastard, the Scots courts again proceed on the principles of the civil law. In Scotland there must first be semi-plenary evidence of the paternity, and then, when such circumstantial or other proof of that fact is adduced as will amount to *semiplena probatio*, the mother is admitted to her oath in supplement. The whole aliment is not due from one parent but from both parents. This is the principle; and therefore in determining what shall be payable by the father, the ability of the mother to contribute is also considered. The absolute amount of aliment, however, is in the discretion of the court, as is likewise its duration. Where the parties are paupers, the bastard's settlement is not the father's but the mother's parish, and if that is unknown, the parish of its birth.

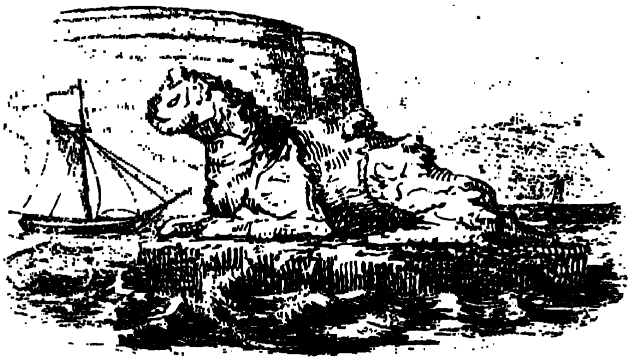
The mother of a bastard is entitled to its custody during its infancy; and it would seem that afterwards the father may take the rearing of the child into his own hand, and also, perhaps, nominate to it tutors and curators. This last power has been denied: if it does not exist it ought to be now bestowed by act of parliament, and by the same means the last remnant of a bastard's civil incapacity removed by his being permitted to make a testament, though he have no lawful issue.

BASTENNES, a village in France, in the department of Landes and in the canton of Amou, which is a small town near the southern boundary of the department, on the Luy de Bearn.

This village is remarkable for a kind of earth which has the property of bitumen when used with wood, and which forms an excellent cement for stone. It is easily worked, as warm bitumen is worked, without attaching itself to the fingers; and as it is impervious to water, it is used for sealing bottles of liquor: but it is chiefly as a cement for stone that it is valuable. It acquires, when exposed for some time to the air, such hardness, that the stones joined by it cannot be parted, but must be broken when it is required to demolish the structure in which they have been used.

This bituminous earth is found on the slope of two hills, which extend in a direction N.E. and S.W. It is covered with common earth, which is easily removed; for the slope of the hills being pretty steep, the earth, when disturbed, rolls down by its own weight, leaving the surface of the bituminous substance bare. This bitumen has the appearance of a hard black stone, and considerable labour is requisite to detach pieces of it from the mass. (*Encyclopédie Méthodique*, Géog. Physique; Expilly, *Dictionnaire des Gaules et de la France.*)

BASTI'A is the principal town in the island of Corsica, and was formerly the residence of the governor, but of late years the prefect of the department of Corsica has resided at Ajaccio. Bastia is situated on the eastern coast of the island, in 42° 43′ N. lat., and 9° 26′ E. long. Its port is not very safe, nor adapted for vessels of large burden: a singular rock at its entrance has very much the appearance of a lion in repose. The natives call it 'Il Leone;' it is of very considerable dimensions, and lies completely isolated in the sea. Its shoulders and neck are covered with creeping plants, which invest them with the appearance of a bushy mane; the fore-legs are thrown forward, the neck is raised, and the head has an air of fierceness about it. This singular object has every appearance of being the work of nature; indeed there is no evidence at all to show that art was in any way concerned in giving the rock this singular form. The composition of the rock is a calcareous stone, of the same character as the rock on which the citadel of Bastia is built; and there can be little doubt that they are parts of the same mass, though the sea appears to cut off the connexion. This lion is of much use as a breakwater when the north winds drive the waters before them. The town is fortified with walls and bastions, but it has large suburbs outside the fortifications. High hills rise behind the town, above which the higher range which runs through the island from north to south is seen. The view from Bastia over the Tuscan Sea is very fine. It embraces the islands of Elba, Capraja, and Monte Cristo, and the distant coast of Tuscany. The streets of Bastia are narrow, and the houses lofty, and built after the Italian fashion. The population of Bastia is about 10,000. The Cour Royale, or court of justice, civil and criminal, for the whole department, sits at Bastia. There is also a society of instruction which has been for some years actively employed in spreading information, especially among the country-people. Bastia has also a college, or superior school. The cathedral of Bastia contains nothing remarkable, but there is a new small church called Cappella di Santa Croce, the construction of which is remarkably elegant. The people of Bastia speak Italian, but most of them are also acquainted with French. Bastia carries on a little trade, chiefly with Leghorn. It exports wine, timber, and cattle. Tobacco and English manufactures are smuggled into Corsica from Leghorn. A road leads from Bastia to Ajaccio across the island, and another leads along the eastern coast to Bonifacio, at the southern extremity of Corsica. Bastia is 32 miles W. by S. from the nearest point of the island of Elba, and 56 from Piombino on the coast of Tuscany. (Benson's *Sketches of Corsica.*)


[Rock called the Lion of Bastia.]

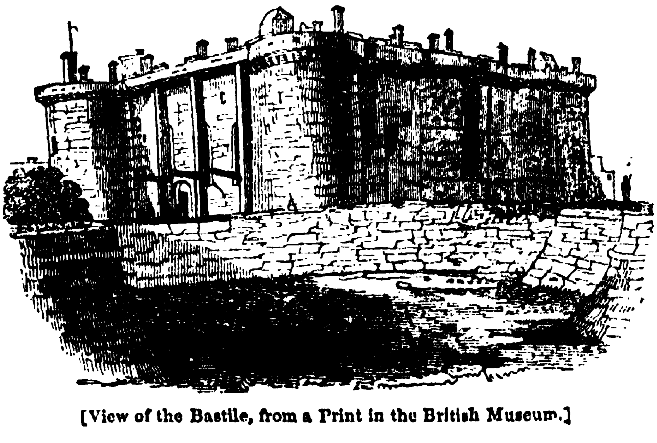
BASTIDE, LA, the name of a number of places in France, all of them in the southern departments. The *Dictionnaire Universel de la France* enumerates sixty-one villages and three towns, of greater or less importance, bearing this designation; and in the *Dictionnaire des Gaules*, &c. of Expilly fifty-six are enumerated. The word bastide is derived from the verb *bâtir*, to build (which was formerly written *bastir*), and is applied to a gentleman's country seat. The most considerable places bearing this name are as follows:—

La Bastide de Clarence, or Clairence, a town in the department of Basses Pyrénées (Lower Pyrenees), a little way S.E. of Bayonne: 43° 25′ N. lat., 1° 15′ W. long. It is on the right bank of the little river Joyeuse, that flows into the Adour. It was built by Louis X. (Hutin) before he ascended the throne of France, while he was yet only King of Navarre. The district belonging to the town contains two mines, one of copper, the other of iron. This last yields spathose ironstone (*fer spathique*—see Aikin's *Dict. of Mineralogy and Chemistry.*) The population, as given in the *Dictionnaire Universel de la France*, 1804, our latest authority, was 2071.

La Bastide de Seron is in the department of Arriège, between St. Girons and Foix, a short distance W.N.W. of the latter town. It had, in 1832, a population of 1652. The whole commune contained 2911 inhabitants. Several of the small streams in the neighbourhood bring down particles of gold. A grey argillaceous earth is found near this place, which, from the goodness of the colour, is used in colouring the houses. It is also used to make crucibles for glass-works: 43° 1′ N. lat., 1° 28′ E. long.

La Bastide, St. Amans, or St. Amand, in the department of Tarn, S.E. of Castres, near the bank of the Tauré, had a population in 1804 of 2140: 43° 29′ N. lat., 2° 27′ E. long.

BASTILE, or BASTILLE, the name used in France to denote a fortress or state-prison. There have been three of that name at Paris, the Bastile du Temple, the Bastile of St. Denis, and that of the Rue St. Antoine. We shall only treat of the last, which has obtained historical celebrity, and is usually denominated The Bastile. This fortress stood at the east end of Paris, on the north side of the Seine. It was originally intended for the protection of the city, but afterwards was used as a state-prison. Hugues d'Aubriot, Prevost des Marchands in the reign of Charles V., laid the first stone on the 22nd of April, 1369, by the order of that king. There had previously been a fortified entrance to Paris on the same spot, on a small scale, which was built by Etienne Marcel, the predecessor in office of Hugues d'Aubriot. The Bastile consisted at first of two round towers, with an entrance between them: afterwards, to render it stronger, two additional towers, parallel to the two first, were built, and the whole connected by walls. The building, however, was not completed till 1383, in the reign of Charles VI., when four more towers were added, of the same dimensions, and at equal distances from the first four, and the whole eight were united by masonry of great thickness, in which were constructed a great number of apartments and offices. The entrance to the city by the original


[View of the Bastile, from a Print in the British Museum.]

gate was closed, and the road carried without the building. In 1634 a fosse, 120 feet wide and 25 feet deep, was dug all round; and beyond that a stone wall, 36 feet high, was built all round. Thus the Bastile became, from a fortified gate, one of the strongest fortresses of the kind in Europe. The towers contained several octagonal rooms one above the other, each having one window pierced in the walls, which were rather more than six feet thick. This window was without any glazing, was wide internally, but narrow like a loop-hole on the outside: in the centre was a perpendicular bar of iron, and two cross-barred gratings between that and the internal part. The entrance to each of these rooms was secured by double doors eight inches thick, strapped with iron, and placed at the distance of the thickness of the walls from each other. There were no fire-places or chimneys in these rooms. The only article of furniture, if it may be so called, was an iron grating raised about six inches from the floor, to receive the prisoner's mattress, and prevent its decay from the damp of the stone floor. To each tower there was a way by a narrow winding staircase. The apartments constructed in the walls, connecting the towers, were larger and more commodious than the others, and were provided with fire-places and chimneys, but with similar precautions for preventing the escape of prisoners. They were usually assigned to persons of some importance, or to those who were treated with indulgence. The rest of the Bastile consisted of two open courts: the larger, 102 feet by 72, called the Great Court; the smaller, 72 by 42 feet, French measure, called the Court of the Well, was separated from the first by a range of buildings and offices, having a passage through them. The height of the building within was 73 feet, but greater on the outside next the fosse. (See the plan in the British Museum.)

In modern times the establishment of the Bastile consisted of a governor, a deputy-governor or lieutenant du roi, a major, an aide-major, a physician and surgeons, a certain number of invalid soldiers and Swiss in the pay of France to perform the military duty of the fortress, with turnkeys to watch over the prisoners, and cooks and other domestics. The office of governor was very lucrative, and the pay and perquisites supposed to amount to 60,000 francs per annum. The other officers were but indifferently remunerated. No officer or soldier could dine out without permission of the governor, or sleep out without an order from the prime minister. The invalids were usually about 100 men, with two captains and a lieutenant, who were well paid. The men had ten sols per diem, with wood, candles, washing, and other allowances. The average expense of the Bastile is said to have been 60,000 francs per month. The governor and deputy-governor superintended the general management of the fortress, the major and his deputy kept all the accounts, including a particular list of all the prisoners, in seven columns, containing, 1. Name and quality of the prisoner; 2. When he entered; 3. By whom the order for his detention signed; 4. When discharged; 5. By whom the order of discharge signed; 6. Cause of detention; 7. Observations or remarks. The last is said to have been filled up only under the direction of the minister or of the lieutenant of police. Prisoners were almost always taken to the Bastile by an exempt of police and two or three armed men in a hackney coach, to avoid observation, and were conducted direct to the governor at his house, to whom the exempt delivered the *lettre de cachet* and took a receipt for it. The prisoner was then led into the body of the fortress, a sign being first made to all the soldiers on duty to cover their faces with their hats during his passage. This was invariably done whenever a prisoner entered or left the Bastile. On his arrival at his room the prisoner was requested to empty his pockets. A list was made of the contents by the major, and signed by the prisoner. His watch, rings, and every other article were taken from him. He was then left for some days without the means of writing; after which he underwent an examination before the lieutenant of police, or some other officer. The interrogators usually began by informing the prisoner that his life was in great danger, and that to save it depended on himself; that if he would freely confess, they were authorised to promise his discharge, otherwise he would be given over to an extraordinary commission; that they had written and oral testimony against him; that his accomplices, his friends, his relatives, had owned every thing; that the king was indulgent; and that they advised him, as his friends, not to conceal the least particular. If by these means they succeeded in extracting the evidence they wished, they then informed him that they had not yet a precise authority for his discharge, but that they hoped shortly to obtain it, would even solicit it, and that he should shortly hear more about it. According to circumstances these examinations were repeated, and no means which cunning could suggest were omitted to entrap and intimidate the prisoner, to draw from him his secret if he had one, or to make him commit himself, or his family, or friends, by dangerous admissions or indiscreet replies. The treatment of the prisoners depended entirely on the will of the governor, who was interested in their being detained, as he contracted with the government for their maintenance, and derived a profit from it; and he being the only channel by which the prisoners could communicate with their friends or with the government, he could suppress their applications if he thought fit. We have the concurrent testimony of almost all the prisoners who have written their memoirs, that the food was bad and scantily supplied, and that all other necessaries were of the worst description. The duration of a prisoner's detention was arbitrary. No term was ever specified. The longest we have been able to discover, from the registers published after the taking of the Bastile is that of Isaac Armet de la Motte, who was removed to Charenton (a lunatic asylum and prison), after a confinement in the Bastile of fifty-four years and five months. In this registry there are several others of thirty years and upwards. The first historical mention of any imprisonment in this fortress is that of Hugues d'Aubriot himself, who having given offence to the clergy, and being accused by them of blasphemy and impiety, was sentenced to be imprisoned for life, but being transferred to another prison, he regained his liberty in the insurrection of a faction called the Mailliotins. The only prisoners who ever effected their escape from the Bastile were two persons of the name of De la Tude and D'Aligre. They were confined together in one of the apartments constructed in the walls of the Bastile. By unravelling their linen, stockings, and other parts of their clothes, and by saving from time to time the billets of wood allowed for their firing, they contrived to make two ladders, one a rope-ladder, near 180 feet long, with rounds of wood covered with flannel to prevent any rattling noise against the walls: the other a wooden ladder, about 30 feet long, consisting of a centre piece, in joints, to be fastened by tenons and mortices, and through which passed wooden pegs to hold it together. The first was to enable them to descend from the platform, or the top of the Bastile, into the fosse; the second to ascend the rampart into the garden of the governor. The ladders, as well as the tools they had formed for making them, were concealed, when the turnkeys visited them, under the floor of their apartment. They cut through the iron gratings in the chimney, which they ascended, and taking advantage of a dark night, got upon the platform. Having first lowered their wooden ladder, they fastened that of rope to one of the cannons of the fortress and descended into the fosse. Finding a patrole with a light in the governor's garden, they altered their plan, and with a handspike formed of one of the iron bars of the chimney grating, made a hole in the wall next the Rue St. Antoine, through which they effected their escape on the 26th of February, 1756. After the revolution of 1789 La Tude claimed and received these ladders, and they were publicly exhibited at Paris in the autumn of that year. Of all the prisoners in the Bastile none have excited curiosity so strongly as the person usually called the Man with the Iron Mask. The extraordinary secrecy observed with respect to this person, and the attention said to have been shown him, have given rise to a variety of conjectures concerning him, more especially as no person of importance was at that time missing in Europe. He has been supposed to have been a twin-brother of Louis XIV., the celebrated Duc de Beaufort, the unfortunate Duke of Monmouth, the Intendant Fouquet, and Ercolo Matthioli, prime minister to the Duke of Mantua. Our space does not permit us to investigate these opinions, or to enter into details respecting them, further than to observe that the last mentioned seems to rest on the best foundation.

The Bastile was besieged and taken three times: in 1418, by the Bourgignons; in 1594, by Henry IV.; and on the 14th July, 1789, by the Parisians, from which day the French Revolution may be dated. Its demolition was decreed by the Permanent Committee of Paris on the 16th, and carried into immediate effect. The materials were employed in the construction of a new bridge, called the Bridge of Louis XVI., and there is not now remaining the smallest vestige of this edifice.

(Dulaure, *Histoire de Paris; Remarques Historiques sur la Bastille; La Bastille dévoilée; Mémoires de Linguet; Mémoires de la Tude.*)

BASTIMENTOS, a port in Colombia, in the department of Istmo, to the north-east of Porto Bello, and near this harbour, 10° 10′ N. lat., and 79° 40′ W. long. It is formed by some islands which line the coast at a distance of about 500 paces: two of them are tolerably large, but the rest so small that they rather deserve the name of rocks. They are all uninhabited, the soil being in general barren, but in some places it is overgrown with wood, in which fine timber occurs. The harbour formed by them is safe, and resorted to by vessels in distress, and in time of war by cruisers. The bottom of the narrow sea between the islands and the shore is quite level, and affords excellent anchoring ground. (Alcedo.)

BASTINA′DO is derived from the Italian *bastone*, a stick, *bastonare*, to beat with a stick, &c. The word would have been more correct in the form baston*áta*, but long use has confirmed our etymological error.

The bastinado is the chief governing instrument of a great part of the world, from Corea and China to Turkey, Persia, and Russia. It is administered in different ways, and called by different names, as the bamboo in China, the knout in Russia, &c.

According to our modern acceptation, the term bastinado does not include all these methods of stick-beating, but is confined to the Turkish and Persian method, which is to beat the soles of the feet with sticks. This excessively painful punishment is thus inflicted. Two men support between them a strong pole which is kept in a horizontal position: about the middle of the pole are some cords with two running knots or nooses; through these the naked feet of the sufferer are forced, and then made tight in such a manner that the soles are fairly exposed; the sufferer is then thrown on his back, or left to rest on his neck and shoulders with his feet inverted, which are forthwith beaten by a third man with a heavy tough stick. When the presiding officer or magistrate gives the word, the heavy blows cease, the maimed feet are cast loose from the cords and pole, and the victim is left to crawl away and cure himself as best he can.

According to the letter of the penal code of the Ottoman Empire, this punishment can only be inflicted on the *men* of the fourth and last class of society, which comprises the slaves, and the rayahs or tributary subjects of the empire, as Jews, Armenians, Greeks, &c. The other three classes, viz.: 1. The Emirs, or issue of the race of the prophet Mohammed, and the Oulemas, or men of the law; 2. Public functionaries, civil and military; 3. Free citizens and private individuals who live on their rents or the proceeds of their industry, were all exempted by law from this cruel and degrading punishment. By the original code the number of blows to be given was from three to thirty-nine; but a later clause permitted them, in certain cases, to be carried to seventy-five, and in practice, when the passions are inflamed, the Turks seem to dispense with the ceremony of keeping any account of the blows, and the men lay on till they are tired, and the sufferer's feet reduced to an unsightly jelly. As late as 1828, it was a very common thing to see a poor Greek or Jew crawling about the streets of Constantinople on his hands and knees, in the greatest agony, and unable to use his wounded feet many days after the infliction; at times they were crippled for life.

The punishment, called *zarb* in Turkish, was generally inflicted in a summary manner, without examination or any form of trial, at the will or caprice of the sultan, his representatives, and the officers of justice and police. The most frequent dispensers of it were probably the Meuhtessibs, or the commissaries of police at Constantinople, each of whom, from time to time, and always unexpectedly, made the round of the quarter of the city assigned him, to see that the provisions were sold at the exact prices despotically and most absurdly fixed by the government, and to ascertain whether the weights and measures in use by the dealers were all just. This officer generally went on horseback, followed by an armed mob of irregular soldiers, and preceded by his bastinado-men (*falacadjis*), whose office was to execute the sentence the moment it was uttered. If the offending dealer were absent, then his shopman or journeyman was punished as his substitute, the commissary only requiring a victim *ad terrorem*, and not having patience to await the return or arrest of the master. The punishment was always inflicted on the spot, in front of the shop in the open street. Sometimes, instead of being bastinadoed, the offender or his journeyman (accomplice or not as it might be) was nailed by the ear to the door-post of his shop, and so exposed till sun-set; at other times there was substituted the punishment of the portable pillory, called khang or cang by the Chinese (who make great use of it as well as of the bamboo), and styled tahtakulah by the Turks, who probably derived the instrument from the Tartars, who may either have borrowed the invention from or given it to the Chinese. [See CANG.]

Under the old system the greatest violence, caprice, injustice, and corruption prevailed in the administration of justice. The man with money in his hands could always save the soles of his feet by bribing the authorities, and the pain of the bastinado was seldom inflicted except on the very poorest of the *baccals*, or shop-keepers, and destitute and unprotected rayah subjects of the Porte. Sultan Mahmoud is said to have recently introduced some improvements; but under a despotic government, like that of Turkey, a summary and rapid mode of proceeding will always obtain more or less.

Although the privileges of the free Turks, or Osmanlis, civil and military, were not always respected, yet their pashas and men of authority or dignity were never subjected to the bastinado like the khans, begs, and others in Persia, where the shah would frequently have his vizier, or prime minister, cudgelled on the feet in his presence, and the vizier would do the like with the highest of the ministers and officers under him. The Osmanlis were always a more sturdy and proud-spirited people than the Persians, and thought that only Jews, Christians, and other tributary subjects could be beaten with propriety. It appears, however, that in the time of Busbequius the Janissaries were 'basted with clubs.' That excellent old traveller says—'Their lighter offences are chastised by the club. . . . . And here let me acquaint you with the patience of the Turks in receiving that punishment: they will receive sometimes a hundred blows on their legs, their feet, and buttocks, so that divers clubs are broken, and the executioner cries out, "*Give me another!*" Yea, sometimes the chastisement is so severe, that several pieces of torn flesh must be cut off from the wounded parts before anything can be applied to cure them. Yet, for all this, they must go to the officer who commanded them to be punished; they must kiss his hand, and give him thanks; nay, they must also give the executioner a reward for beating them. . . . . . As some relief to their misery, they count those parts wounded with the rod or club to be free from any purgations and expiations after this life.'

(See D'Ohsson, *Tableau Géneral de l'Empire Othoman*; Busbequius, *Embassy to Solyman the Great*; and *Modern Travellers in Turkey*, &c.)

BA′STION. This term is applied to a species of tower which constitutes the principal member of the fortifications immediately surrounding a town, or position to be defended. The rampart by which it is formed is disposed on four sides of a pentagon, two of which, technically called the *faces*, meet in an angle whose vertex projects towards the country; the other two, denominated the *flanks*, connect the opposite extremities of the faces with the *curtain*, or that part of the rampart which coincides in direction with the sides of a polygon supposed to inclose the town: the fifth side of the pentagon is generally unoccupied by a rampart, and is called the *gorge* of the bastion.

From the infancy of the art of war the defenders of a fortress must have felt the necessity of having the walls disposed so as to afford means of observing the enemy when very near their foot; for, when these means were wanting, the enemy was enabled to plant his scaling-ladders against, or even to make a breach in the wall itself, with almost perfect security. This was inevitably the case when the ground-plan of the *enceinte*, or inclosing rampart, was a simple polygon, since the men stationed on the rampart for its défence, behind the parapet by which they were protected, were incapable of seeing the exterior ground which lay near the base of the walls. Thus, according to the old story in Pausanias (iv. 20), when the Messenians were besieged in their hastily erected fort on Mount Ira, the guards being driven from their posts by violent rains, and there being no towers or projections from the walls to shelter them, the Spartans gained possession of the parapets by escalade. To avoid such a surprise, it was the practice of the antient engineers to construct either *machicoulis* on the top of, or projecting towers at certain intervals along, the walls of fortresses, that from thence the besieged might get a view of and be able to annoy the enemy, when at the latest and most critical period of the siege the latter should have gained the otherwise undefended ground. The walls of Messene, built by Epaminondas (Paus. iv. 31), which were all of stone, and furnished with battlements and towers, were reckoned by Pausanias among the best specimens of Grecian fortification.

From the accounts given by antient writers of their fortified places, and particularly from the precepts of Vitruvius (*Architectura*, lib. i. cap. 5), we learn that the projecting towers were sometimes square or polygonal, but generally circular, and that their distance from each other along the walls was regulated by the range of the weapons employed in the defence. In the fortifications of cities this distance seems to have varied from 80 to 100 paces, according to local circumstances, and the power of annoying the enemy by the arrows and javelins discharged from the towers; but, from the greater distance at which modern arms will take effect, the bastions, measuring from the vertices of their projecting angles, are now generally, and agreeably to the rules of Vauban, placed at 360 yards from each other. It was a maxim with the antient engineers that the projecting quoins of walls were detrimental to the defence, from the facility with which they might be destroyed by the battering-ram; and it is on this account that Vitruvius recommends the towers to be circular, or to have faces forming with each other obtuse angles. These towers were placed indifferently at the angles, or at any part on the line of the inclosing rampart: in the latter case, when they were of a square form, one side was parallel to the length of the rampart, and in the former, one face was almost always perpendicular to a line bisecting the angle between two adjacent sides of the polygon surrounding the town; that is, to what would be now called the *capital* of the bastion. It must have frequently happened, therefore, that this face was nearly unseen from any other part of the rampart, and that the enemy made his assault against it in order to avoid, as much as possible, being exposed to annoyance from the defenders of the neighbouring works. It is true that the smallness of the towers rendered it impossible for the enemy to be wholly concealed at their front; but the desire of entirely depriving the enemy of the benefit arising from the undefended nature of that ground probably induced engineers to dispose the faces of their towers like those of a modern bastion, so that two of them might form a projecting angle, whose vertex was on the capital.

There is no reason to believe that any material change took place in the manner of constructing the towers of fortresses during all the long period in which the antient arms were employed; but it is easy to conceive that the invention of fire-arms would render it necessary to enlarge the tower for the purpose of receiving the guns, and to increase the thickness of the rampart, that it might be able as well to resist the concussion produced by the discharge of the ordnance placed upon it, as the shock of the enemy's artillery when fired against it. On this account, also, the ramparts were constructed of earth, and their exterior surface was formed at such an inclination to the ground as would enable it to stand unsupported, except where it became necessary to prevent an escalade; in which case a facing of stone, brick, or timber was made sufficiently high and steep to create a serious impediment to any attempt of that nature. An opinion that the bastions are the weakest parts of a fortress remained in force, however, long after the modern artillery was introduced in sieges. On this account they were at first made very small, when compared with the extent of the wall between them; and the line of each face, when produced towards the town, was made to intersect that wall, in order that the fire from the part intercepted between this produced line and the flank of the next bastion might cooperate with that made from the latter in defending the ditch in front of the former bastion. But when the ramparts of a town were found to disappear almost instantly under the weight of shot discharged from large ordnance, it became necessary to employ ordnance of corresponding size on the walls; and the dimensions of the bastions were finally augmented to those at present assigned. The lengths of the faces vary from 100 to 120 yards, and the flanks are usually about 50 yards long; but the magnitude of the projecting angle in front, called the *salient* or *flanked* angle, to distinguish it from the angles formed by the faces and flanks which are denominated *shoulder angles*, evidently depends upon the kind of polygon on which the *enceinte* is constructed. Each face of a bastion, if produced towards the town, now falls at the interior extremity of the flank of the collateral bastion, so that the defence of a bastion depends wholly upon the fires from those on its right and left.

It is to Italy that we must look for the invention of the modern bastion: the wars which raged in that country from the commencement of the twelfth century, and which were more systematically conducted there than in any other part of Europe, gave rise to this, as well as to many other inventions for military purposes. The precise date of its first formation is quite unknown; but if we omit the improbable story related by Folard, that the Turkish commander, Achmet Pacha, caused bastions to be constructed about Otranto, when he took that place in 1480, we may observe that it is spoken of under the name of *Balvardo*, as an improvement of great importance in the military art, by Tartaglia, in his *Quesiti ed inventi diversi*, which was published in 1546; and in the same work is given a plan of the fortifications of Turin, which exhibits a bastion at each of the four angles of the rampart. Both Vasari, in his *Lives of the Architects*, and Maffei, in his *Verona Illustrata*, ascribe the invention to San Michaeli of Verona: one of the bastions of this city has on it the date 1527, and its construction is still ascribed to that engineer, who, in fact, was about that time employed in the erection or repair of several of the fortresses in Italy. From the word Balvardo, denoting a stronghold, the earliest French engineers gave to this work the appellation of *Boulevard*; and such is its designation in the treatise of Errard, which was published in 1594. The term *Bastion* appears to have been taken from the Italian writers, for Maggi, in his treatise *Della Fortificatione delle Citta*, applies the term *Bastioni* to redoubts constructed of earth; and, according to Pere Daniel, the French subsequently gave to such works the name of *Bastilles*, or *Bastides*. Froissart also uses these terms in speaking of the forts executed during the siege of Ventadour by the Duc de Berri, under Charles VI. It should be remarked, however, that Errard applies the name of *Bastion* indifferently to works in the situation of those now so called, and to those to which the name of *Ravelin* is generally given; and doubtless it denoted originally any work of earth constructed on the exterior of one more antient.

It appears that it had been the practice from the earliest times to form a rampart, or bank of earth, in front of the walls of fortresses, in order to secure the latter from the destructive effects of the ram; and it is easy to conceive that, by forming such a bank in front of the old towers of a place, so as to connect those previously existing in front of the adjacent curtains, the work would assume a figure like that of a modern bastion; and indeed would very much resemble one of the detached bastions in what is called the second system of Vauban; the original tower of the fortress occupying the place of the interior bastion of that system, and constituting a sort of *retrenchment* to the new work. The construction was proposed in 1584 by Castriotto, seemingly as if it had been his own idea; but probably he meant only to recommend the adoption of a kind of work which must have been then a novelty.

The Italian engineers, immediately after the invention of the bastion system of fortification, became celebrated for their skill in military architecture, and they seem to have been extensively employed in the construction or repair of fortresses beyond the Alps: one of the first of their labours in the north of Europe was the fortification of Landreci, with bastions, for Francis I.; and the like works were executed about New Hesdin, on the frontiers of Artois, for Charles V. In 1568, the Duke of Alva employed Pacciotto in the construction of the citadel of Antwerp, a regular fortress, whose bastions still exist within those subsequently erected at that place; and, during the reign of Elizabeth, Genebella was brought from Flanders to this country in order to superintend the formation of a bastioned *enceinte* about the antient castle of Carisbrook, in the Isle of Wight.

Albert Durer, the celebrated engraver, proposed, in 1527, to fortify places with circular towers only, like those of the antients, but of larger dimensions; and in most of the plans published during the sixteenth century by Italian engineers, there appears to be a union of the old and new methods: for the angles of the polygons are furnished with round towers, and these are protected exteriorly by bastions.

The guns mounted on the flanks of a bastion, by firing along the ditch in front of the curtain and of the neighbouring bastions, created a serious impediment to the passage of the enemy across the ditch in attempting an assault, and it became necessary for him to silence that fire by a battery placed for the purpose in the direction of the ditch; but the establishment of this battery necessarily compelled the defenders to augment the number of guns in their bastions. To get room for these guns, engineers were induced to form their bastions with a double and even a triple flank on each side, the flanks receding from each other, from below upwards, in the manner of terraces, towards the interior of the bastion; and, to prevent the enemy from dismounting the guns in the lower flanks by other batteries raised in the prolongations of those flanks, it became necessary to mask them by extending the rampart of the face beyond them, and giving it a return towards the curtain; this return was frequently rectilinear, but generally in the form of an arc of a circle, like a portion of a round tower, and the projection with its return received the name of *orecchione* or *orillon*. Besides masking the lower flanks from the effect of any enfilading, or lateral fire, it concealed one or more guns on the upper flank from the fire of an enemy's battery directly opposed to that flank, while it permitted those guns to defend the main ditch and the breach made by the enemy in face of the collateral bastion.

The desire of avoiding the exposure of the flanks of the bastions gave rise to the practice of making them form a right, and even an acute, angle with the curtain; but a better judgment subsequently rejected this disposition, as the musketry fire from the defenders of the flank was thereby liable to injure the men stationed on the curtain. The lower flanks, also, were eventually suppressed, because they contracted too much the interior of the bastion to which they belonged; and because the enemy's fire, soon destroying the parapets of those above, masses of brickwork fell among the defenders below, and obliged them to quit their guns at the very time that their service was most required. The *orillons*, moreover, are now considered useless, as they contract the length of the flank; and the guns which they protect from a fire in their front are liable to be dismounted by a fire from their rear.

In what are called the second and third systems of Vauban, the principal bastions are detached from the *enceinte* by a ditch in their rear, and consequently the capture of those works would not immediately compel the surrender of the fortress. In these systems, a small bastion of brickwork, closed by a parapet wall at its gorge, is constructed at each of the angles formed by the polygonal wall surrounding the place. The fire from the parapets of these tower bastions, as they are called, would have a powerful effect in preventing the enemy, after he has breached and stormed the great bastions, from erecting batteries in them to destroy the interior walls; and, in order to preserve the artillery of their flanks uninjured till the end of the siege, engineers placed it in casemates [see CASEMATE], from whence the guns might pour a destructive fire upon the assailants when crossing the ditch of the *enceinte*. In one of the systems of Coehorn, each principal bastion is attached to the *enceinte*, and contains an interior one for the purpose of prolonging its defence. At the shoulders of the former are constructed towers of masonry, serving as *orillons* and containing galleries whose front walls are pierced with loopholes, to allow a fire to be directed along the interval between the parallel faces of the two bastions.

Bastions are now made either solid or hollow: that is, either the interior is filled with earth up to the level of the platforms of the guns, or it is left coincident with that of the natural ground. Of the two methods, the former is generally preferred, because it affords some facilities for the formation and defence of interior parapets or retrenchments. In almost every system of fortification the ramparts of the faces and flanks of bastions have been made rectilinear on the plan; a few cases, however, occur in which the flanks have been curved, with their convexity towards the interior of the work. This seems to have been devised to allow room for a few more men to fire over their parapets than a straight wall could afford, and to prevent the distant batteries of the enemy from easily dismounting their artillery by firing along the interior side of the parapet. On some occasions these advantages may be worth obtaining, but as the soldier placed behind a parapet always fires nearly in a direction perpendicular to its length, it is evident that the curved flank may cause the lines of fire to tend towards the right or left of the main ditch, and thus endanger the safety of the defenders stationed in the neighbouring works.

The desire of lessening the effect of what is called the enfilading fire, or that which an enemy may direct along the interior side of any parapet, has led Bousmard to give a small curvature to the faces of his bastions, the concave part being towards the interior; but it is evident that, by this construction, the lines of fire directed from the collateral flank for the defence of the face, instead of grazing the latter in its whole length, can only be tangents to the curve, each line of fire meeting it in but one point. It is therefore probable that the injury inflicted on the enemy would be found so much less than that arising from the usual construction, as to neutralize entirely the advantage of the diminished enfilade fire of the enemy.

This last mode of firing would be most effectually prevented by the formation of semi-circular bastions, detached from the *enceinte*, in the manner lately proposed by Mr. Bordwine; but the ingenious author of that system is, in consequence, compelled to abandon, in a great measure, the advantage of having the exterior of his walls well defended from those which are in collateral situations. The batteries however which he proposes to raise in the interior of his bastions cannot fail to produce a powerful defence towards the rear, for the rampart of his *enceinte*.

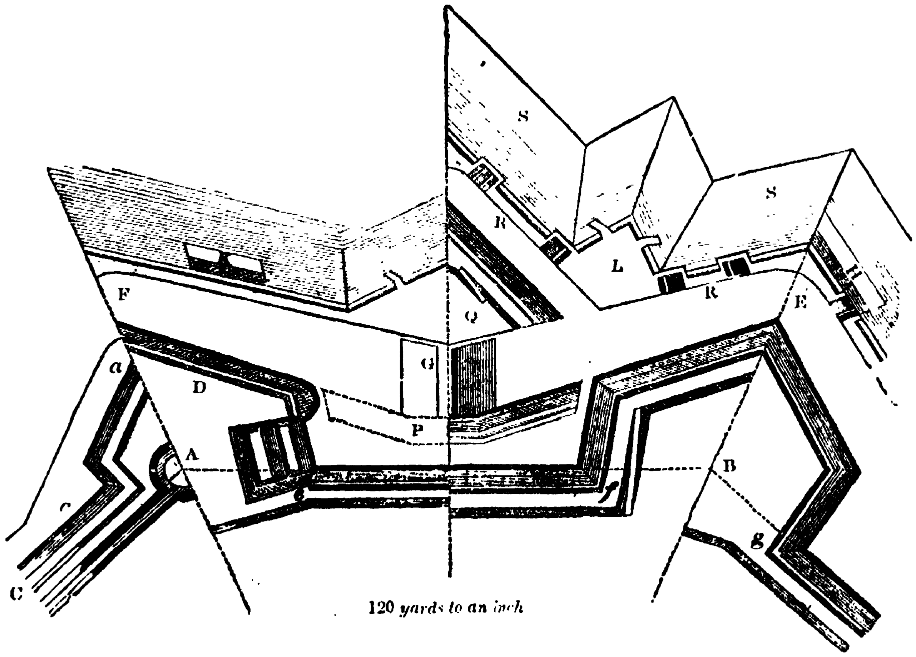


Fig. 1. The line A B represents one side of the polygon supposed to inclose the town fortified. The semicircular work at A is half a round tower; and A C is part of the curtain, or connecting wall between two such towers, according to the antient manner of fortifying places; *a c* represents a sort of *fausse braye*, or elevation of earth protecting the antient walls of a place. D represents half a bastion constructed at the angle, A, of the polygon, according to the method of the first Italian and French engineers, with an orillon and triple flank. The pentagonal figure about B is the plan of a modern bastion, of which the part on the left of the *capital*, B E, represents what is called a hollow, and that on the right a solid bastion. An imaginary line from *f* to *g* is the gorge, and the rampart, *e f*, is the curtain joining the right flank of one bastion to the left of the next. The space, F G E, is the main ditch; and H and K are respectively the positions of a counter and enfilading battery which might be constructed by the enemy to silence the fires from the triple flank of D. The outworks, P, G, Q, R, S, [Tenaille, Caponniere, Ravelin, Covered-way, and Glacis] will be described under those words.

Fig. 2.

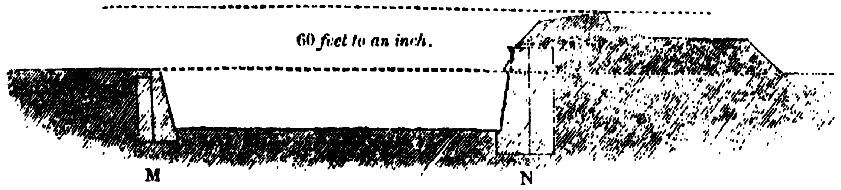
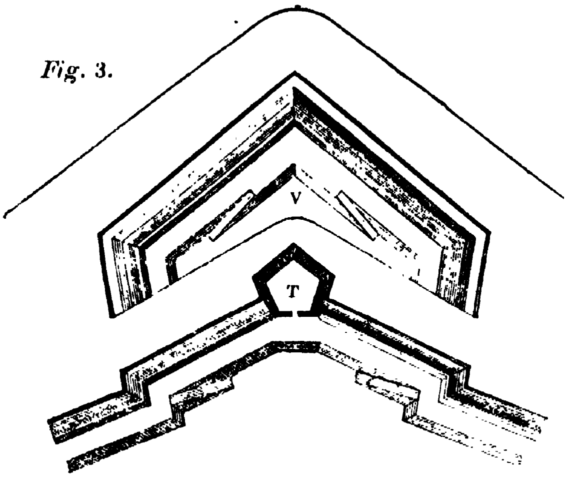


Fig. 2 represents a section supposed to be made from B to L, perpendicularly across the rampart on the left face of B, and the main ditch in its front. M and N are sections through the revetments, or walls which support the earth on the sides of the ditch.

Fig. 3.



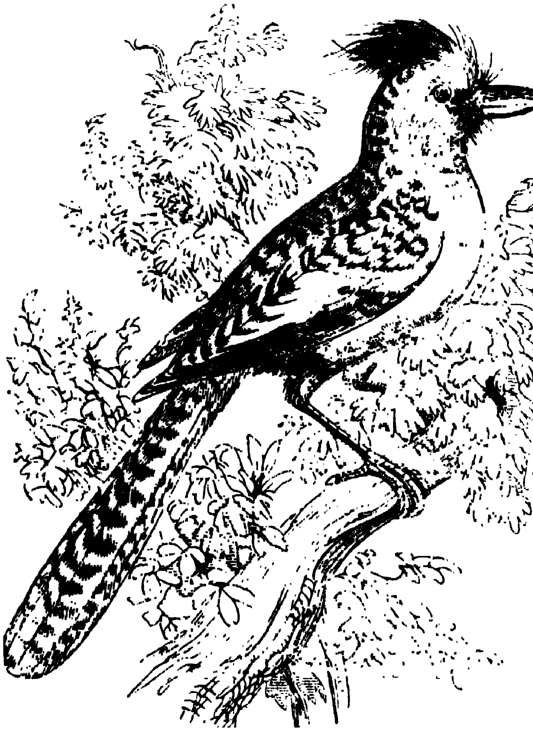
In *fig*. 3, V represents the plan of a detached bastion; T is a tower bastion at an angle of the polygon which surrounds the place.

(Vitruvius, *De Architecturâ*; Maggi, *Della Fortificatione delle Citta*, Venetia, 1584; Errard, *La Fortification réduite en art*, Par. 1600; De Ville, *L'Ingénieur Parfait*, Par. 1672; Vauban, *Œuvres Militaires*, par Foissac, Par. 1795; Belidor, *La Science de l'Ingénieur*, Par. 1729; Fritach, *L'Architecture Militaire*, Par. 1668; Cormontaigne, *Œuvres Posthumes*, Par. 1809; Montalembert, *La Fortification Perpendiculaire*, Par. 1776-98; Bousmard, *Essai Général de Fortification*, Par. 1814; St. Paul, *Traité Complet de Fortification*, Par. 1806; Savart, *Cours Elémentaire de Fortification*, Par. 1830; Mandar, *De l'Architecture des Forteresses*, Par. 1801; Dufour, *De la Fortification Permanente*, Genève, 1822; Carnot, *De la Défense des Places Fortes*, Par. 1812; Col. Pasley, *Course of Elementary Fortification*, Lond. 1822; Malortie, *Permanent Fortification*, Lond. 1821; Capt. Straith, *A Treatise on Fortification*, Croydon, 1833.)

BAT. [See Cheiroptera.]

BATA'RA (Zoology), D'Azara's name for the *Bush-shrikes*, forming the genus *Thamnophilus* of Vieillot. A very good account of these birds, which appear to have been found between the northern and southern points of Canada and Paraguay, will be found in the *Memoirs* of Dr. Such and Mr. Swainson, published in the *Zoological Journal*. The latter zoologist considers the typical group to consist of the species with long tails; and of this division, *Thamnophilus Vigorsii*, Such (*Vanga striata*, Quoy and Gaimard), may be taken as an illustration.

Dr. Such states this to be the largest species yet known, and gives thirteen inches as the length of the body. The bill is black and very much compressed. In the male (which is the sex here figured) the back, wings, and tail are black, broadly banded with fulvous, and the under part of the body is a dirty whitish-brown. On the head is a rufous crest which is blackish at the apex. In the female the


[Thamnophilus Vigorsii.]

[Thamnophilus nævius.]

bands are whitish and the crest blackish, and the under part of the body ash-colour.

Thamnophilus nævius, the *spotted shrike* of Latham, is an example of the round and comparatively short-tailed division.

Leach thus describes it from a specimen in the British Museum: Black; back and belly ash-coloured; the former anteriorly spotted with white; quills of the wings externally, and the tips of those of the tail, white; under part of the body ash-colour, of which colour the back partakes in a considerable degree.

BATA'TAS, the Malayan name of a convolvulaceous plant, the root much eaten in the south of Europe before the cultivation of the potato, which both became a substitute for it and appropriated its name. It has generally been considered a species of convolvulus; but Professor Choisy, in his recent classification, has erected it and a few others into a peculiar genus, distinguished by having an ovary with four cells, in each of which there is only one seed.

[Batatas.]

The only species of any general interest is the *Batatas edulis*, the *Convolvulus Batatas* of authors. This plant, originally found wild in the woods of the Malayan archipelago, has been gradually dispersed over all the warmer parts of the world, where it is still an object of culture for the sake of its roots, which, when roasted or boiled, are mealy, sweet, and wholesome, but slightly laxative. It is a perennial plant, with long creeping stems, leaves variously lobed and angled, and pale purple flowers about an inch long. It is impatient of cold, and consequently unfit for cultivation in the northern parts of the world; but it is a productive agricultural plant in many warm countries. It is partially cultivated in the south of Spain and of France, whence its roots are sent to the markets of Madrid and Paris, where they are held as a delicacy. They, however, have the great fault of keeping badly, being very apt to become mouldy and to decay, unless extraordinary pains are taken to preserve them dry. Sometimes they are raised in the hothouses of curious persons in this country, by planting them in rich soil in a bark-bed, when plenty of roots weighing from one to two pounds are easily obtained.

BA'TAVI, or BATA'VI (the forms Badai and Betavi also occur in inscriptions), the name of the antient inhabitants of South Holland, and some adjacent parts. The Batavi were a Germanic tribe of the race of the Catti, who, some time before the age of Cæsar, left their native district, and settled on the banks of the Vahalis, the present Waal, a branch of the Lower Rhine. They occupied the district between the Vahalis and the Mosa above their junction, and also the island formed by the northern arm of the Rhine (or Rhine of Leyden), the Vahalis and Mosa after their junction, and the ocean; which island now constitutes part of the province of South Holland. Cæsar (*De Bell. Gall.* iv. 10), who mentions their country by the name of Insula Batavorum, appears to consider it as belonging to Germany, and not to Gaul; the limits of Belgic Gaul on that side being placed at the southern branch of the Rhine, or Waal, after its junction with the Mosa, or Maas. They seem to have occupied also a small portion on the banks of the Rhine, and not within the island. Cæsar did not carry the war into the country of the Batavi. Under Augustus the Batavi became allies of the Romans. Drusus, the brother of Tiberius, resided for a time among them, and dug a canal, Fossa Drusiana, which connected the Rhine with the modern Yssel. Besides the Batavi there was another people on the same island, probably in its north-western extremity, called by the Roman historians Canninefates. They were of the same origin as the Batavi (Tacitus, *Hist.* iv. 15.), but not so numerous, and their name became gradually lost in that of the larger tribe.

The chief place of the Canninefates was Lugdunum Batavorum, now Leyden; and that of the Batavi was Batavodurum, afterwards called Noviomagus, and now Nymegen. This is Mannert's opinion, though others have placed Batavodurum at Duurstede, and made it a different place from Noviomagus. The other towns of the Batavi were Arenacum, generally supposed to be Arnheim, but placed by others near Werthuysen; Carvo, on the northern branch of the Rhine, probably near Arnheim; Grinnes, near the junction of the Waal with the Maas; Trajectum, the modern Utrecht; and Forum Hadriani, in the western part of the island near the sea. The name of the Batavi can be traced even now in that of Betuwe, which is a district of the antient Batavorum Insula, between the Rhine, the Waal, and the Lek. [See Betuwe.] Beyond the northern branch of the Rhine, and between that and the Flevium, or Yssel, in the province now called North Holland, were the Frisii and the Frisiaboni, tribes belonging to the great Frisian stock which inhabited the land north-east of the Yssel. Pliny places two other tribes, the Sturii and the Marsucii, on the islands off the western coast at the mouth of the Mosa, which islands now form part of Zealand.

After the death of Galba, the army of the Rhine having proclaimed Vitellius, and followed him on his way to Italy, the Batavi took the opportunity of rising against the Romans, whose alliance had become very burthensome to them. Claudius Civilis, a man belonging to one of their principal families, though bearing a Latin name, acted as their leader. At one time the insurrection seems to have spread among the neighbouring tribes of Germans as well as of Belgian Gauls, but the speedy return of the legions suppressed the movement. Civilis resisted for a time, but the Batavi were at last subdued. Still it would appear that they obtained conditions, for we find them afterwards restored to their former state of free allies of Rome. (Mannert, *Geschichte der alten Deutschen.*) It appears, however, that subsequently, under the reigns of Trajan and Hadrian, the Romans had completely established their dominion over the Batavi; for we find in the Antonine Itinerary and the Peutinger Table, two Roman roads across the country, one from Lugdunum eastward to Trajectum, and following the course of the northern Rhine to its separation from the Vahalis, and another from Lugdunum southward across the island to the Mosa, and then eastward along the bank of that river and the Vahalis to Noviomagus. We also find places named after the emperors, such as Forum Hadriani, and fortified camps, such as Castra Batava, which some, however, suppose to have been the same as Batavodurum. (See Mannert, *Geographie der Griechen und Römer.*) There was another place in Upper Germany, or, more properly, in Noricum, called also Castra Batava, near the confluence of the Inn and the Danube, which was colonized by Batavi, apparently in conformity with the policy which led the R transplant their subjects and allies from their foreign countries. [See Army.] The Batav ployed by Agricola in his wars in Britain. (Tacit. *Agric.* xxxvi.) In some inscriptions they are called 'friends and brothers of the Roman people,' or of the 'Roman emperors.' The date of one of these inscriptions is determined by the name of the Emperor Aurelius. (Gruter. lxxi.)

In the latter part of the third century, during the civil war which desolated the empire, the Salian Franks invaded the country of the Batavi, and established themselves in it. They armed pirate vessels, which were encountered and defeated at sea by Carausius. Constantius and Constantine waged war against the Franks of the Batavian island, but could not drive them out of it. The Franks lost it, however, under Julian, by an irruption of Frisians, who came from the northern country near the Zuiderzee, and drove the Salian Franks beyond the Maas. After this the Insula Batavorum formed part of the country called Fresia, which, in the time of the Merovingians, extended southward as far as the Scheldt. Under Charlemagne it formed a duchy bearing allegiance to the empire, 'Ducatus Fresiæ usque ad Mosam.' It afterwards became divided into Western Frisia, called Fresia Hæreditaria, which was subject to hereditary counts; and Eastern Frisia, or Fresia Libera, which remained independent. The Yssel formed the division between the two. About the eleventh century we first find Western Frisia called by the name of Holland, some say from *hohl land*, 'a low hollow land,' and its counts took the name of Counts of Holland. The country of the antient Batavi formed the southern part of their dominions; but the islands at the mouth of the Maas, and between it and the Schelde, were the subject of frequent contentions and wars between them and the Counts of Flanders. (D'Anville, *Etats formés en Europe après la Chûte de l'Empire Romain*; Meyer, *Res Flandricæ*.) Although the name Batavi has fallen into disuse, it has always been employed by modern authors writing in Latin to signify the Dutch or Hollanders generally.

BATA'VIA, one of the districts, or residences, of the island of Java. It is bounded on the north by the Java Sea, on the west by the regency of Bantam, from which it is divided by the river Tjikandé, on the south by the residence of Buitenzorg, and on the east by the river Tjitarum, which forms the western boundary of the district of Crawang. The dimensions of the district of Batavia are about twenty-four leagues from east to west, and about six and a half leagues from north to south, the capital being situated nearly in the middle of the northern boundary.

The district of Batavia is divided politically into four departments, one of which consists of the city and its suburbs. Near to the sea-shore the country is flat, but rises with a gentle acclivity towards the south to the mountain-range, which intersects the island from the western to the eastern extremity. This district is well watered. The river Jaccatra, which joins the sea at the town of Batavia, dividing it into nearly equal parts, has a bank or bar at its mouth which prevents the entrance of any but the smallest boats. This disadvantage generally attends all the rivers on the north coast of Java, which, as they have their sources on the north side of the mountain-range, and flow in a pretty direct line to the sea, are not of great length. They serve, however, together with numerous rivulets, to irrigate the lands, and this is of the greater benefit, as one of the chief productions of the district is rice. There are many sugar plantations in the district of Batavia, and their number has been very greatly increased of late years since the island was restored to the Dutch. This species of cultivation has been encouraged by the local government, as affording the means of remitting to the parent state the surplus revenue of the colony. Cotton, pepper, and coffee (the last to a considerable extent), are likewise produced in this district. The population, according to the census taken in 1821, was 182,654.

Stavorinus's *Voyages*; Count Hogendorp's *Coup d'Œil sur l'Ile de Java, &c.*, 1830.)

BATA'VIA is a city on the north coast of Java, situated at the bottom of an extensive bay, about 60 miles E.S.E. of the Straits of Sunda. It was formerly a native village called Jacatra, and though probably visited by the Portuguese, they did not form any commercial settlement here. The English and Dutch had factories, the former of which was established in 1618, and the latter in 1612; but the Dutch, having conquered the country, founded the present town under the name of Batavia, and removed the government from Bantam in 1619. It finally became the capital of their East Indian empire, and the residence of the governor general; and the English, having taken part with the natives in opposing the Dutch, retired from the place. Being called in to aid various parties in their civil wars, the Dutch obtained still more power on the island, but they did not enjoy undisturbed possession for several years, and were frequently attacked by the natives. The town rose rapidly to importance, and became the emporium of all the produce of India, China, and Japan, as no ship was allowed to proceed direct to Holland without first touching at this port, except the coffee ships from Mocha. It remained uninterruptedly in the hands of the Dutch till 1811, when Holland having become a province of the French empire, Batavia fell into the hands of the French, from whom it was taken by the English, and by the treaty of 1815 was restored to the Dutch, who returned to the government in the following year.

Batavia is an important place, from its excellent bay and its advantageous position for European commerce. It stands at the mouth of the river Jacatra, in the midst of swamps and marshes, surrounded by trees and jungle, which prevent the exhalations from being carried off by a free circulation of the air, and render the town peculiarly obnoxious to marsh miasmata. Besides this, all the principal streets are traversed by canals, planted on each side with rows of trees, over which there are bridges at the end of almost every street. They have also booms, which are drawn across at sunset to prevent the passage of boats in and out. These canals are the common receptacles for all the filth of the town. In the dry season their stagnant and diminished waters emit a most intolerable stench, while in the wet season they overflow their banks, and leave a quantity of offensive slime From these united causes it is not surprising that Batavia has been considered the most unhealthy spot in the world, and has been designated the storehouse of disease. According to Raynal, the number of sailors and soldiers alone who died in the hospitals averaged 1400 annually for sixty years, and the total amount of deaths in twenty-two years exceeded a million of souls; but this looks very like an exaggeration. During the French occupation, the walls of the town were removed by General Daendels with the view of admitting a freer circulation of air, and with the materials the cantonment of Weltevreeden was built, a short distance from the town inland.

The city is about three quarters of a mile in length, north and south, and about half a mile wide. It was enclosed by a wall of coral rock, with a stream of water on each side, within and without. There are now only three churches in the town, and one theatre: at the southern part is a large square where the stadthaus stands, in which the courts of law are held, and all public business transacted. The streets are generally at right angles to one another, and the houses mostly of brick stuccoed. They are well built, clean, and spacious, and their construction is suited to the country. The doors and windows are lofty, and the ground floors are covered with flags of marble, which are kept constantly wet, and impart a coolness to the dwelling. Few Europeans, however, sleep within the town, as the night air is considered very baneful. The inhabitants (possibly as an antidote against the noxious effluvia arising from the swamps and canals) continually burn aromatic woods and resins, and scatter about a profusion of odoriferous flowers, of which there are great abundance and variety. During the prosperity of the Dutch East India Company, Batavia obtained the title of Queen of the East, as the resources of all other districts were sacrificed to its exclusive commerce; but its splendour has greatly decreased, owing chiefly to the increase of the British empire in India. Whole streets also have been pulled down in consequence of the European settlers removing their residences from the town to the high grounds in the neighbourhood.

In the north-east quarter of the town is the citadel, a large square inclosure with a bastion at each angle, but without any outworks; within the citadel are residences for the Governor-General and chief officers, with warehouses for the most valuable of the Company's goods in case of danger. In addition to these defences there are several small batteries and redoubts in and around the town, besides fortified houses, so placed as to command the navigation of the principal canals. Most of these works are merely for the purpose of keeping the natives in awe, and are ill-calculated to withstand an invading army, as was proved in 1811. But if the fortifications of Batavia are not formidable in themselves, they become so from their situation among swamps and morasses, where, by the destruction of a few roads that cross them to the town, the approach of heavy artillery would be impracticable; and towards the bay the water is too shallow to admit even of a boat coming within gunshot-range of the castle, except by the narrow entrance to the river, which may be closed by booms.

The diversified population of Batavia and its suburbs within two miles, according to the census of 1815, amounted to 47,417, and consisted of Dutch, English, Portuguese, Chinese, Moors, Arabs, Malays, Javanese, and negro slaves: of these classes the Chinese are by far the most numerous and important. In 1824 another census was taken, when the number was 53,861, of whom 14,708 were Chinese. This does not include the military establishment at Weltevreeden. The Chinese farm the revenues, are the principal artisans, and exclusively manufacture the sugar and arrack. They have a separate quarter outside the town, the suburbs of which occupy a larger space than the city itself: they suffer greatly from disease, and the mortality among them is very great, owing to the closeness of their apartments and their gross manner of living. Many junks arrive annually from China, bringing about 1000 settlers. In 1742, in consequence of a supposed organised plan of insurrection on the part of the Chinese, the Dutch government perpetrated a most cold-blooded massacre, in which more than one half of the Chinese were murdered.

The country around Batavia is very beautiful and fertile, though flat in the vicinity of the town. Markets are regularly held, one within and the other outside the city, which are remarkably well supplied with fruit, which is the most abundant article of vegetable luxury: the principal sorts are, pine-apples, oranges, shaddocks, lemons, limes, mangoes, bananas, grapes, melons, pomegranates, custard-apples, papaws, mangosteens, and rombusteens, wih many others mostly unknown in Europe. Fowls, ducks, and geese, are plentiful and cheap; turkeys, pigeons, and wild-fowl are, in general, very scarce, and butcher's meat inferior and dear: of fish there is an abundant supply, and turtle are sometimes found. The chief imports are opium and piece goods; the exports sugar, coffee, and spices: salt also forms an important article of colonial commerce; near Batavia there are some very extensive works for making salt from sea-water.

The anchorage of Batavia is a bay, about eleven miles long and six deep, capable of containing any number of vessels of the largest size; it is studded with coral knolls and protected by several small islands, averaging half a mile in diameter, all of which are occupied, and have their different appropriations; one is a convict establishment; another an hospital; a third is covered with warehouses for articles of small value; a fourth (Onrust) is the naval arsenal, which is well fortified.

These islands protect the bay from any heavy swell; and, as the bottom is very tenacious, it becomes a perfectly safe anchorage. But when the sea-breeze blows strong it causes a cockling sea, which renders the communication with the town unpleasant, and sometimes dangerous, as the only landing-place is up the river; the channel of which is formed by wooden piers, projecting half a mile into the sea, and across it is a shallow bar. The river Jacatra abounds in large alligators. During the easterly monsoon, which blows from April to October, the weather is uniformly fine and warm; but the north-west monsoon is always accompanied by heavy rains and strong winds. The summer range of the thermometer is from 70 to 74 in the mornings and evenings, and 80 at noon. The rise of tide is about six feet.

Batavia lies in 6° 9′ S. lat., and 106° 52′ E. long.

(Raffles's *History of Java*; Staunton's *Embassy to China*; Cook's *Voyages*; Crawfurd's *History of the Indian Archipelago*; Horsburgh's *East India Directory*; Hogendorp's *Coup d'Œil*, &c. There is a plan of Batavia, for the year 1669, in Mandelslo's *Travels*.)

BATAVIAN REPUBLIC. [See HOLLAND.]

BATH, the chief city of Somersetshire, celebrated for its natural hot springs, is about 108 miles from London, in 51° 22′ 32″ N. lat., and 2° 31′ 30″ W. long. The town lies in a valley, divided by the river Avon. Geologically it is placed upon the great western oolitic range, which attains its greatest elevation on Lansdown, above Bath, where its summit is 813 feet above the level of the sea. This range is intersected in the neighbourhood of the city by deep transverse valleys, but re-appears on the south of the Avon, where its elevation is so broken that its continuity is destroyed. Its section near Lansdown is a bed of upper, or great oolite, varying from 40 to 150 feet in thickness, forming the brow of the hill; then a gradual slope of fullers-earth-clay; next a terrace of inferior oolite with its underlying sand and sandstone, which falls with a precipitous slope and rests on lias clay, or blue marl, and then on lias rock. The freestone or oolite, worked from quarries situated to the east and south of Bath, has furnished almost entirely the chief building materials for the city. The soil upon the declivities of the hills is generally rich, and the lower grounds afford very fine pasturage. The country about is wooded; and from the inequality of the ground presents a great variety of agreeable landscape. From the sheltered position of the city, its temperature is mild. The following table is made-up from observations continued through fifteen years, the temperature being noted from a thermometer placed in a north aspect, and fifteen feet from the ground, compared with tables given by Dr. Clark in his work on climate

	Nov.	Dec.	Jan.	Feb.	Mar.
Near London .	40·93	37·66	34·16	39·78	41·51
Oxford . .	43·60	37·00	36·90	37·10	42·10
Bath . .	45·35	42·25	37·75	41·25	44·40

In the summer months, the same observations give the mean temperature of Bath at 61·20 in June, 64·20 in July, and 62·70 in August. The mean annual depth of rain which falls there is 35·30 inches, and the number of days on which rain or snow falls is 162, every day being noted wet on which sufficient rain fell to mark the pavement.

This city was a Roman station, mentioned by Ptolemy, under the name of *Aquæ Calidæ*, and by him placed with *Venta* and *Ischalis* in the country of the Belgæ. It is also placed in the 14th Iter of Antoninus, in connexion with other stations, thus, Ab Isca Venta Silurum, M.P. ix. Abone, M.P. ix. Trajectus, M.P. ix. *Aquis Solis*, M.P. vi. Verlucione, M.P. xv. Cunetione, M.P. xx. Spinis, M.P. xv. Calleva, M.P. xv. The stations preceding and following that of Bath are much disputed, and their actual position is very doubtful. In the *Notitia*, Bath is not mentioned. It was intersected by the antient Roman road leading from London into Wales, and by the road called the Fosse, which ran from Lincolnshire to the south coast of England. These two roads joined near the bridge crossing a small stream in the parish of Bath Easton, about two miles from Bath. They then continued in one course through a great portion of the parish of Walcot, separating again near Walcot church. The Fosse entered the north gate of the city from Walcot street, passed through the town, up Holloway and on to Ilchester. The other road ran up Guinea Lane, and on to the station of Abone. Close to the spot where these roads separated, and towards the river, numerous coins, vases, and sepulchral remains have from time to time been found. The Roman remains discovered in Bath and in its neighbourhood have been considerable. At Box a tessellated pavement of large dimensions is at this time lying open, proof of the existence of a villa on the spot. Several such remains have been found in the country around Bath, especially at Bath-Ford, Ditheridge, Horsland near Warley, and at Wellow. In the city of Bath itself, the foundations of extensive buildings have often been traced. On the eastern side of the Fosse, near the north end of Stall-street, portions of a large temple were discovered, and are still preserved in the Bath Institution. Its front was towards the west, and consisted of a portico with fluted columns, crowned with Corinthian capitals. Towards the east of this building stood the principal baths, the remains of which were discovered in 1755. In other parts of the city, altars with inscriptions, tessellated pavements, ornamented bricks, urns, vases, lachrymatories, fibulæ, coins, &c., have been turned up, but none of the inscriptions throw any light upon the history of the place. No city in England can produce such a collection of local Roman remains as is now deposited in the Bath Literary and Scientific Institution: there is nothing like it in the kingdom, except at Newcastle-upon-Tyne, where the collection is from the whole of the northern field. The new town is many feet above its antient level; in some places more than twenty. The walls, as they existed until a late period, are presumed to have been built, to a great extent, upon the base of the Roman walls. There are accounts and engravings of Roman inscriptions and sculptures incorporated in the walls, none of which are now existing.

The modern city of Bath is of great beauty. Its streets are very regular, clean, and, at night, well-lighted. Its best buildings, such as the Upper Rooms, the north side of Queen-square, the Crescent, and Circus, were built about the middle of the last century, from designs of the two Woods. The last forty years have hardly produced a building of any architectural value, though the materials for building are cheap, and the stone is worked with great ease. The architecture of the later buildings is generally of a bald character.

The city is governed by a corporation, under charters granted by Queen Elizabeth, Sept. 4, 1590, and by George III., 1794. The first of these charters directs that the corporation shall consist of a mayor, aldermen, not exceeding in number ten, nor fewer than four, and a common council of twenty members. There are also a recorder, town-clerk, and two sergeants-at-mace. The local court of record has cognizance of all personal actions whatsoever arising within the city and its suburbs or precincts, without restriction as to the amount of the sum in dispute. The non-residence, however, of the recorder, the legal adviser of the magistrates and one of the presiding judges; the attorneys of the court being the two sergeants-at-mace and unprofessional persons; and the ease with which a cause may be removed to any of the superior courts, by writ of *certiorari* or *habeas corpus*, destroy all its advantages. A court-leet, and court of quarter-sessions are also held by the magistrates, who, though without power to try persons charged with felonies under the charter of the city, are perhaps enabled to try them under the 4 and 5 Will. IV. c. 27, sec. 3. By the charter of 1794, eleven instead of two members of the corporation are empowered to act as justices of the peace within the city. The members of the corporation, though self-elected, must be chosen from the freemen; and as the freemen by purchase were considered to have a claim to be elected before the freemen by servitude, the price of the freedom, shortly before the Reform Act passed, was 250*l*. The property of the body is very extensive, including lands and houses in the best part of the city; all the hot-springs but one; nearly all the cold-springs which supply the town with water; and the tolls of the market; altogether producing, in 1832, a rental of more than 12,000*l*. per annum. In 1832 the public debt of the corporation amounted to 55,863*l*.

The charter boundaries of the city include part of the parishes of Walcot and Bathwick, and the parishes of St. Peter and St. Paul, St. James, and St. Michael. The parliamentary boundaries of the city, under the Boundary Act, include, in addition, the remaining parts of the parishes of Walcot and Bathwick, and the parish of Lyncombe and Widcombe. The new limits comprised, in 1831, a population of 50,800 persons (21,035 males and 29,765 females), charged with assessed taxes to the amount of 62,000*l*. a-year; 3310 acres of ground, and above 7000 houses, more than 5000 of which were taxed at the annual value of 10*l*. The power of electing the parliamentary representatives of the city was formerly in the corporation only. Under the Reform Act, the number of registered electors, in each of the last three years, has been about 2800. The inhabitants of Bath are exempt from serving on the juries of the county.

A community of Religious existed here from the earliest ages of Christianity in Britain, who had their house near to the springs and baths. The constitution of the society underwent several changes, and at last the house and all its possessions, which were extensive and valuable, were surrendered to the crown by William Holloway, the last prior, June 29, 1539. What is now called the Abbey Church was the church of this community, and was connected, on the south side, with the conventual dwellings. An older church having fallen into decay, the building of the present edifice was begun by Bishop Oliver King, in the reign of Henry VII., at the time of whose death it was unfinished, and continued to be so when the priory was dissolved. After having been in a dilapidated state for many years, its repair was undertaken by Chapman, in 1572, continued by the munificence of Thomas Bellot, steward of the household of Queen Elizabeth, and was nearly completed by Bishop Montague, about the year 1609. This edifice is of the shape of a cross, with a very handsome tower rising from the centre. Its length from east to west is 210 feet, and from north to south 126. The west front is decorated with numerous figures, now much impaired by time, intended to represent Jacob's dream. The east window is remarkable for being square, and was until very lately appropriately supported by two square towers, which have been converted into ill-designed octagonal pinnacles. The building itself is an example of the pointed style at the latest period in which it prevailed, and was completed with great simplicity and taste. In 1834 its whole design and character were materially changed, and its most peculiar features destroyed. The interior is entirely disfigured by the multitude of monuments with which it is covered. It is the parish church of the parish of St. Peter and St. Paul.

The ecclesiastical division of Bath is into the parishes already named, each of which has its parochial church. There are also the following chapels connected with the Established Church:—Queen Square, Margaret's, All Saints, Kensington, Octagon, Laura, St. Mark, Trinity, St. Saviour, Christ Church, Magdalen's, St. John's Hospital. Records also exist of eleven chapels which have been destroyed. The Independents, Quakers, Moravians, Methodists, Unitarians, Roman Catholics, Jews, and Baptists, have all places of worship in the city, the majority of which are large and handsome buildings.

There are charitable institutions in this city of antient and modern date of every kind. The oldest is the hospital of St. John, founded in 1180 by Reginald Fitzjocelyne, as it is said, for the benefit of the sick poor resorting to Bath. The beneficiaries now are a master, six brethren, and six sisters. The patronage of the mastership was granted by Queen Elizabeth to the corporation of Bath. Its endowments are large, and the annual value of its property in 1818, chiefly leased on lives, in consideration of fines, was 11,395*l*. The master receives two-thirds of the fines and income, and the brethren and sisters the remainder. The chief establishment, however, for the sick poor is called the General Hospital. It was opened in 1743, and is regulated by act of parliament. No patient can be admitted unless his case has been certified as proper for the trial of the hot waters, previous to his coming to Bath, and no inhabitant of Bath is admitted into it. This last regulation, though wisely framed, is to some extent evaded by the admission of persons dwelling in the suburbs, but beyond the charter limits of the city. The charity is well endowed, and its records have had the character of having been kept with great care, fidelity, and exactness. There is also another large hospital called the United General Hospital, or Casualty and Dispensary, which affords to the sick poor of the city the advantages of the use of the hot waters, and gives assistance in cases of ordinary illness and casualty. It is well governed, and the whole of its arrangements are good.

There is a small collection of books in the vestry of the abbey church and some antient MSS. In the year 1826 a literary and scientific institution was founded, comprising, partly by purchase and partly by benefactions, an extensive and well-selected library of reference both in science and literature. The institution also contains a small museum and laboratory, with rooms for the delivery of lectures. There is also a Mechanics' Institute, which has a tolerable collection of books, and which has been almost entirely supported for some years by the class for whose use it was designed.

The chief institution for instruction is the free grammar-school, founded by Edward VI., and endowed with part of the lands of the dissolved priory of Bath. It was designed for the gratuitous instruction of the children of the inhabitants of the town without distinction. The school-house is a large and handsome building with spacious premises. The schoolmaster may be a layman; but if in holy orders, must be presented to the rectory of Charlcombe, the value of which was, in 1834, about 300*l*. a-year. His salary, as master, is 84*l*. a-year; but as the school is well attended, and only ten free scholars are admitted, the value of the office is much increased by the payments of day-scholars and boarders. The lands of the school are very badly let, producing, in 1834, a rent of only 376*l*. a-year, though their annual value, in 1822, was about 1238*l*. There are several other schools which afford the elements of education, such as reading, writing, and arithmetic, supported chiefly by voluntary subscriptions.

The 'ever memorable' John Hales, of Eton, was born in St. James's parish, and Benjamin Robins, said to have been the actual writer of *Anson's Voyage round the World*, was a native of this city, which also claims Adelardus de Bathonia, who passed some time in the east during the reign of Henry I., and brought to England, among some Arabic MSS., a translation of Euclid, being the first copy of the work known in this country.

The gaieties of Bath are celebrated, but have much declined during the last twenty years. The Assembly Rooms are a handsome suite, the ball-room being nearly 106 by nearly 43 feet, and 42 feet 6 inches high, and the tea-room 70 by 27 feet: they were erected by Wood. The theatre is probably one of the best of its size in England; for it Mr. Palmer obtained the first act of parliament passed in this country for the security of theatrical property. It is justly remarked by Seneca, 'Ubicunque scatebunt aquarum calentium venæ, ibi nova diversoria luxuriæ excitabuntur:' 'wherever warm springs abound, new places of amusement are sure to arise up.'

There is no manufacture of importance in this city. It was formerly celebrated for its cloth, and at the Restoration no less than sixty broad looms were employed in the parish of St. Michael's. The paper-mills in the neighbourhood are of some note, and paid, in 1832, to the excise 10,575*l.* The city is well-supplied with coal from extensive beds lying a few miles distant. The river Avon was made navigable to Bristol under an act of the 10th Anne, and there is a water-communication with London by the Kennet and Avon Canal, which joins the Thames at Reading.

The remarkable peculiarity of Bath is its natural hot springs. They are four in number, and rise near the centre of the city; and, with the exception of a spring belonging to Lord Manvers, are vested in the corporation. The temperature of three of the springs is as follows:—Hot Bath 117°, King's Bath 114°, and Cross Bath 109° of Fahrenheit, yielding respectively 128, 20, and 12 gallons a minute. The specific gravity of the water is 1·002. As it flows from the earth it is transparent, but in a short time yields a slight precipitate and loses its transparency. When fresh drawn it has a slight chalybeate taste. The King's Bath is 60 feet 11 inches in length, and 40 feet in breadth, and the Queen's Bath, a square of 25 feet, is supplied from it. The daily quantity of water discharged into these basins is 184,320 gallons. There are private baths attached to the Hot and the King's Bath, admirably arranged and constructed, and capable of having their temperature regulated. Bathing is far from being a practice among the inhabitants. The public baths are not much frequented, and the private baths, though they occasion few charges for their support, but that of linen and attendance, are expensive. The encouragement of their general use, and the effect of low prices, as connected with the advancement of local interests, are not yet understood. The baths yielded to the corporation, in 1831, a rent of 1442*l.*, and the pump-room a rent of 416*l.* a-year. The waters have been very accurately analyzed by Drs. Falconer and Gibbes, and by Mr. R. Phillips. According to the last of these writers, whose experiments were very carefully made, a quart of water taken from the hot springs contains—

Carbonic acid . . .	2·4	in.
Sulphate of lime . .	18·	grains.
Muriate of soda . . .	6·6	„
Sulphate of soda . .	3·0	„
Carbonate of lime . .	1·6	„
Silica	·4	„
Oxide of iron . . .	·00394	
	29·60394	
Loss . . .	39606	
	30	

Estimating the muriate and sulphate of soda in a crystallized state, a pint of water contains—

Carbonic acid	1$\frac{1}{5}$	in.
Sulphate of lime	9	grains.
Muriate of soda . . .	3$\frac{1}{2}$	„
Sulphate of soda	3$\frac{1}{2}$	„
Carbonate of lime	$\frac{8}{10}$	„
Silica	$\frac{1}{5}$	„
Oxide of iron	$\frac{1}{68}$	„

A considerable quantity of carbonic acid gas escapes through the water.

Taken internally the water acts as a stimulant. Its use is most successful in cases of palsy, rheumatism, gout, leprosy, cutaneous disease, and especially in cases of scrofula affecting the joints, such as the knee, elbow, hip. It cannot be used without danger in cases accompanied with fever, cough, or pain in the chest, open sores or ulcers, or in cases where there is reason to suspect internal suppuration, hemorrhage, rupture, mania, or plethora. From its improper internal use mischievous results are frequently produced.

The earliest work on the hot springs is by W. T dated 1562. The writer, a divine and doctor of medicine, and the first English writer on natural history, was born at Morpeth, and was imprisoned for preaching the doctrines of the Reformation. Obtaining his liberty, he went abroad, where he continued during the greater part of the reign of Henry VIII. On his return he was preferred, and received from Edward VI. the deanery of Wells. Other treatises have been written by Venner, 1617; Guidott, 1691, 1708; Pierce, 1697; Oliver, 1716; Cheyne, 1725; Wynter, 1728; Quinton, 1734; Kinnier, 1737; Randolph, 1752; Charleton, 1754; Lucas, 1756; Steven, 1758; Sutherland, 1763; Falconer, 1770, 1789; Gibbes, 1800; Wilkinson; Phillips, 1806; Daubeny, 1834.

(See Collinson's *History of Somersetshire*, vol. i.; Warner's *History of Bath;* Lysons's *Reliquiæ Romanæ;* Wood's *Essay towards a Description of Bath*, 1742, 1749, 1760; *Charity Commissioners' Reports*; 'On the Climate of Bath,' *Bath Magazine*, vol. iii. p. 289; *On the Oolitic District of Bath*, by Lonsdale; *Transactions of the Geological Society*, vol. iii. p. 241; *Municipal Corporation Inquiry*, 1833; Turner's *History of England*, 8vo. vol. iv. p. 438; *MS. Communication from Bath.*)

BATH, a town in Lincoln county, state of Maine, in the United States of North America, situated in 43° 54′ N. lat., and 69° 47′ W. long. This town is built on the west side of the river Kennebec, at the head of the ship-navigation on that river, and sixteen miles from the sea. It is distant thirty-five miles north-east from Portland, which town was, until 1832, the seat of government in the state. With the exception of Portland, Bath has more shipping belonging to its port than any other town in Maine; the amount of registered and licensed tonnage in 1831 was 26,237 tons: the population, according to the census of 1830, was 3773.

BATH, KNIGHTS OF THE, so called from the antient custom of bathing previous to their installation. The origin of this order of knighthood has been described as of very remote antiquity; but as Camden and Selden agree that the first mention of an order of knights, distinctly called Knights of the Bath, is at the coronation of Henry IV. in 1399, there can be little doubt that this order was then instituted. That bathing had been a part of the discipline submitted to by esquires in order to obtain the honour of knighthood from very early times, is admitted; but it does not appear that any knights were called Knights of the Bath till these were created by King Henry IV.

Froissart (see Lord Berners's *Translat.* edit. 1812, vol. ii. p. 752), speaking of that king, says, 'The Saturday before his coronation he departed from Westminster, and rode to the Tower of London with a great number: and that night all such esquires as should be made knights the next day, watched, who were to the number of forty-six. Every esquire had his own bayne (*bath*) by himself; and the next day the Duke of Lancaster made them all knights at the mass-time. Then had they long coats with strait sleeves, furred with mynever like prelates, with white laces hanging on their shoulders.'

It became subsequently the practice of the English kings to create Knights of the Bath previous to their coronation, at the inauguration of a Prince of Wales, at the celebration of their own nuptials or those of any of the royal family, and occasionally upon other great occasions or solemnities. Fabyan (*Chron.* edit. 1811, p. 582) says that Henry V., in 1416, upon the taking of the town of Caën, dubbed sixteen Knights of the Bath.

Sixty-eight Knights of the Bath were made at the coronation of King Charles II. (see the list in Guillim's *Heraldry*, fol. Lond. 1679, p. 107); but from that time the order was discontinued, till it was revived by King George I. under writ of Privy Seal, dated May 18, 1725, during the administration of Sir Robert Walpole. The statutes and ordinances of the order bear date May 23, 1725. By these it was directed that the order should consist of a grand-master and thirty-six companions, a succession of whom was to be regularly continued. The officers appropriated to the order, besides the grand-master, were a dean, register, king of arms, genealogist, secretary, usher, and messenger. The dean of the collegiate church of St. Peter, Westminster, for the time being, was appointed *ex officio* dean of the Order of the Bath, and it was directed that the other officers should be from time to time appointed by the grand-master.

The badge of the order was directed to be a rose, thistle, and shamrock, issuing from a sceptre between three imperial crowns, surrounded by the motto *Tria juncta in uno;*

to be of pure gold, chased and pierced, and to be worn by the knight-elect, pendant from a red riband placed obliquely over the right shoulder. The collar to be of gold, weighing thirty ounces troy weight, and composed of nine imperial crowns, and eight roses, thistles, and shamrocks issuing from a sceptre, enamelled in their proper colours, tied or linked together by seventeen gold knots, enamelled white, and having the badge of the order pendant from it. The star to consist of three imperial crowns of gold, surrounded with the motto of the order upon a circle gules, with a glory or ray issuing from the centre, to be embroidered on the left side of the upper garment.

The installation dress was ordered to be a surcoat of white satin, a mantle of crimson satin lined with white, tied at the neck with a cordon of crimson silk and gold, with gold tassels, and the star of the order embroidered on the left shoulder; a white silk hat, adorned with a standing plume of white ostrich feathers; white leather boots, edged and heeled; spurs of crimson and gold; and a sword in a white leather scabbard, with cross hilts of gold.

Each knight was to be allowed three esquires, who are to be gentlemen of blood, bearing coat-armour; and who, during the term of their several lives, are entitled to all the privileges and exemptions enjoyed by the esquires of the sovereign's body, or the gentlemen of the privy chamber.

In 1815, the Prince Regent, being desirous to commemorate the auspicious termination of the long and arduous contests in which the empire had been engaged, and of marking, in an especial manner, his sense of the valour, perseverance, and devotion manifested by the officers of the king's forces by sea and land, thought fit to advance the splendour and extend the limits of the Order of the Bath: upon which occasion his Royal Highness, by virtue of the royal prerogative, was pleased to ordain that thenceforward the order should be composed of three classes, differing in their ranks and degrees of dignity.

The first class to consist of knights grand crosses, which designation was to be substituted for that of knights companions previously used. The knights grand crosses, with the exception of princes of the blood-royal holding high commissions in the army and navy, not to exceed seventy-two in number; whereof a number not exceeding twelve might be nominated in consideration of services rendered in civil or diplomatic employments. To distinguish the military and naval officers upon whom the first class of the said order was then newly conferred, it was directed that they should bear upon the ensign or star, and likewise upon the badge of the order, the addition of a wreath of laurel encircling the motto, and issuing from an escrol inscribed *Ich dien*; and the dignity of the first class to be at no time conferred upon persons who had not attained the rank of major-general in the army, or rear-admiral in the navy.

The second class was to be composed of knights commanders, who were to have precedence of all knights bachelors of the United Kingdom: the number, in the first instance, not to exceed one hundred and eighty, exclusive of foreign officers holding British commissions, of whom a number not exceeding ten may be admitted into the second class as honorary knights commanders; but in the event of actions of signal distinction, or of future wars, the number of knights commanders may be increased. No person to be eligible as a knight commander who does not, at the time of his nomination, hold a commission in his Majesty's army or navy; such commission not being below the rank of lieutenant-colonel in the army, or of post-captain in the navy. By a subsequent regulation in 1815 no person is now eligible to the class of K.C.B. unless he have attained the rank of major-general in the army or rear-admiral in the navy. Each knight commander to wear his appropriate badge or cognizance, pendent by a red riband round the neck, and his appropriate star, embroidered on the left side of his upper vestment. For the greater honour of this class, it was further ordained that no officer of his Majesty's army or navy was thenceforward to be nominated to the dignity of a knight grand cross who had not been appointed previously a knight commander of the order.

The third class to be composed of officers holding commissions in his Majesty's service by sea or land, who shall be styled companions of the said order; not to be entitled to the appellation, style, or precedence of knights bachelors, but to take precedence and place of all esquires of the United Kingdom. No officer to be nominated a companion of the order unless he shall previously have received a medal or other badge of honour, or shall have been specially mentioned by name in despatches published in the *London Gazette* as having distinguished himself.

The bulletin announcing the re-modelling of the Order of the Bath was dated Whitehall, January 2, 1815.

By another bulletin, dated Whitehall, January 6, 1815, the Prince Regent, acting in the name and on behalf of his Majesty, having taken into consideration the eminent services which had been rendered to the empire by the officers in the service of the Honourable East India Company, ordained that fifteen of the most distinguished officers of that service, holding commissions from his Majesty not below that of lieutenant-colonel, might be raised to the dignity of knights commanders of the Bath, exclusive of the number of knights commanders belonging to his Majesty's forces by sea and land who had been nominated by the ordinance of January 2. In the event of future wars, and of actions of signal distinction, the said number of fifteen to be increased. His Royal Highness further ordained that certain other officers of the same service, holding his Majesty's commission, might be appointed companions of the Order of the Bath, in consideration of eminent services rendered in action with the enemy; and that the said officers should enjoy all the rights, privileges, and immunities secured to the third class of the said order.

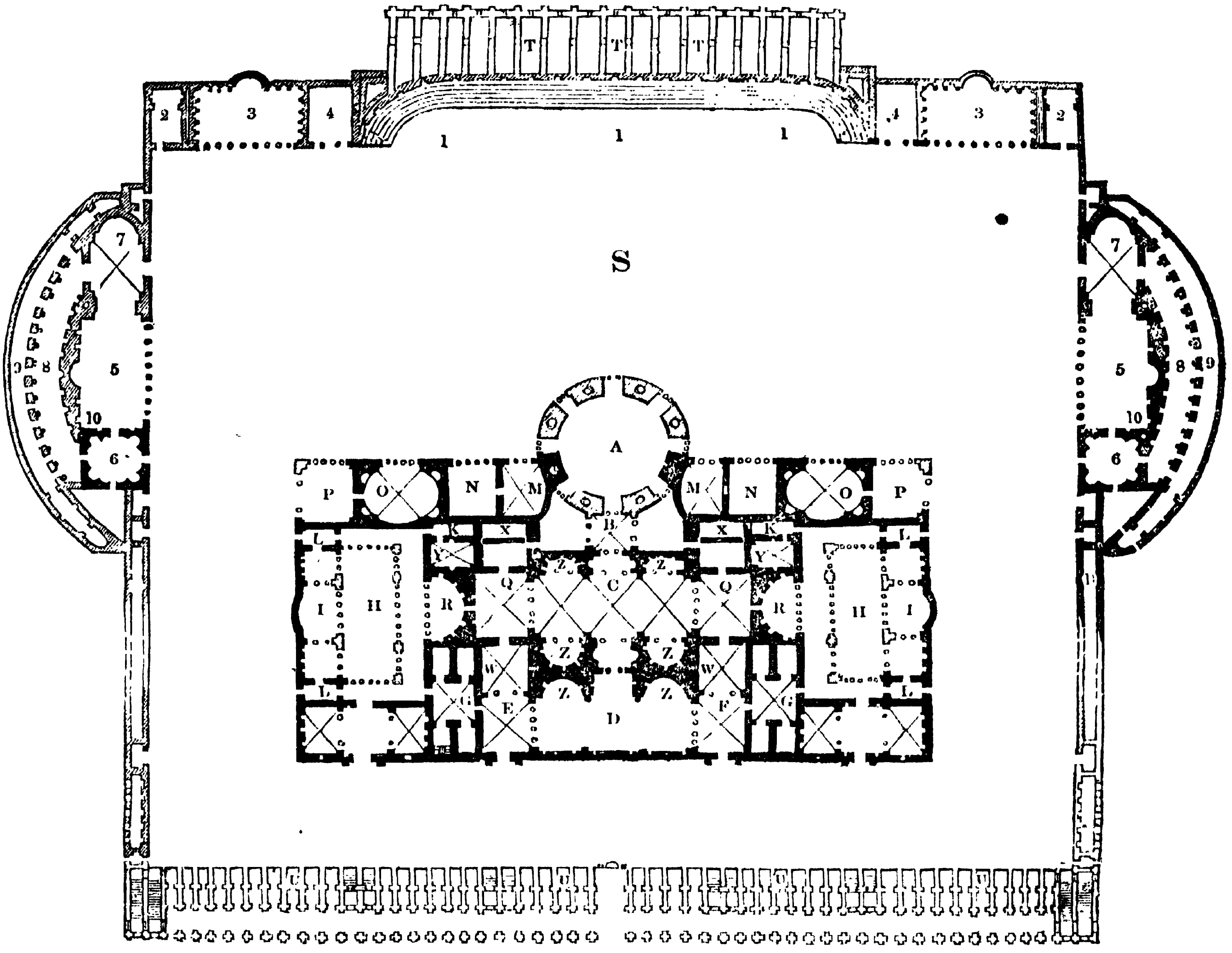
(See *Observations introductory to an Historical Essay upon the Knighthood of the Bath*, by John Anstis, Esq. 4to. Lond. 1725; Selden's *Titles of Honour*, fol. Lond. 1672, pp. 678, 679; Camden's *Britannia*, fol. Lond. 1637, p. 172; Sandford's *Genealog. Hist.* fol. 1707, pp. 267, 431, 501, 562, 578; J. C. Dithmari, *Commentatio de Honoratissimo Ordine de Balneo*, fol. Franc. ad Viad. 1729; Mrs. S. S. Banks's *Collections on the Order of the Bath*, MSS. Brit. Mus.; *Statutes of the Order of the Bath*, 4to. Lond. 1725, repr. with additions in 1812; *Bulletins of the Campaign* 1815, pp. 1-18.)

BATH, a place for the purpose of washing the body, either with hot, warm, or cold water: the word is derived from the Saxon bað. The Greek name is balaneion (*βαλανεῖον*), of which the Roman balineum, or *balneum*, is only a slight variation: the elements *bal* and *bad* in the Greek and English words are evidently related. The public baths of the Romans were generally called *Thermæ*, which literally means 'warm waters.'

The bath was also in common use among the Greeks, though we are not well acquainted with the construction and economy of their bathing-places. At Athens there were both private and public baths: the public baths appear to have been the property of individuals, who kept them for their own profit or let them to others. (See Isæus, *On the Inheritance of Dicæogenes*, cap. vi.; *ditto of Philoctemon*, cap. vi.) Lucian, in his *Hippias* (vol. iii. ed. Hemsterh.), has given a description of a magnificent bath. Though he does not tell us whether it was built in the Roman or the Greek style, we may safely conclude that he is speaking of a bath in a Greek city. His description is not precise enough to render it certain that this bath in its details agrees with those of Rome and Pompeii; but the general design and arrangement appear to be nearly the same.

We learn from Seneca that the Roman baths were very simple, even mean and dark, in the time of Scipio Africanus; and it was not until the age of Agrippa, and the emperors after Augustus, that they were built and finished in a style of luxury almost incredible. Seneca (*Epist.* lxxxvi.), who inveighs against this luxury, observes that 'a person was held to be poor and sordid whose baths did not shine with a profusion of the most precious materials,—the marbles of Egypt inlaid with those of Numidia; unless the walls were laboriously stuccoed in imitation of painting; unless the chambers were covered with glass, the basins with the rare Thasian stone, and the water conveyed through silver pipes.' These it appears were the luxuries of plebeian baths. Those of freedmen had 'a profusion of statues, a number of columns supporting nothing, placed as an ornament merely on account of the expense: the water murmuring down steps, and the floor of precious stones.' (Sen. *Epist.* lxxxvi.) These baths of which Seneca speaks were private baths.

Ammianus Marcellinus reckons sixteen public baths in Rome. The chief were those of Agrippa, Nero, Titus, Domitian, Antoninus Caracalla, and Diocletian. These edifices, differing, of course, in magnitude and splendour, and in the details of the arrangement, were all constructed on a common plan. They stood among extensive gardens and walks, and were often surrounded by a portico. The main building contained large halls for swimming and bathing, some for conversation, others for various athletic and manly exercises, and some for the declamation of poets and the lectures of philosophers; in a word, for every species of polite and manly amusement. These noble rooms were lined and paved with marble, adorned with the most valuable columns, paintings, and statues, and furnished with collections of books for the studious who resorted to them. (See *Pompeii*, published by the Society for the Diffusion of Useful Knowledge, vol. i.) These baths, which were called *Thermæ*, are now all in ruins. The best preserved are those of Titus, Diocletian, and Antoninus Caracalla. (See *Life of Anton. Caracall.* by Æl. Spartianus.) We here subjoin a plan of the baths of Caracalla, which were finished, according to Eusebius, in the fourth year of that emperor's reign. The most complete and elegant baths had generally the following apartments:—An apodyterium, or room for undressing; an unctuarium, for the ointments; a sphæristerium, or large room for exercises; a calida lavatio, or warm bath; a laconicum, or hot room for sweating; a tepidarium, or warm room with a tepid bath; and a frigidarium, which contained the cold bath: to these may be added rooms for feasting and conversation. (Cameron *On Roman Baths*.)



[Plan of the Baths of Caracalla from the measurements of Palladio.]

Scale of English Feet.

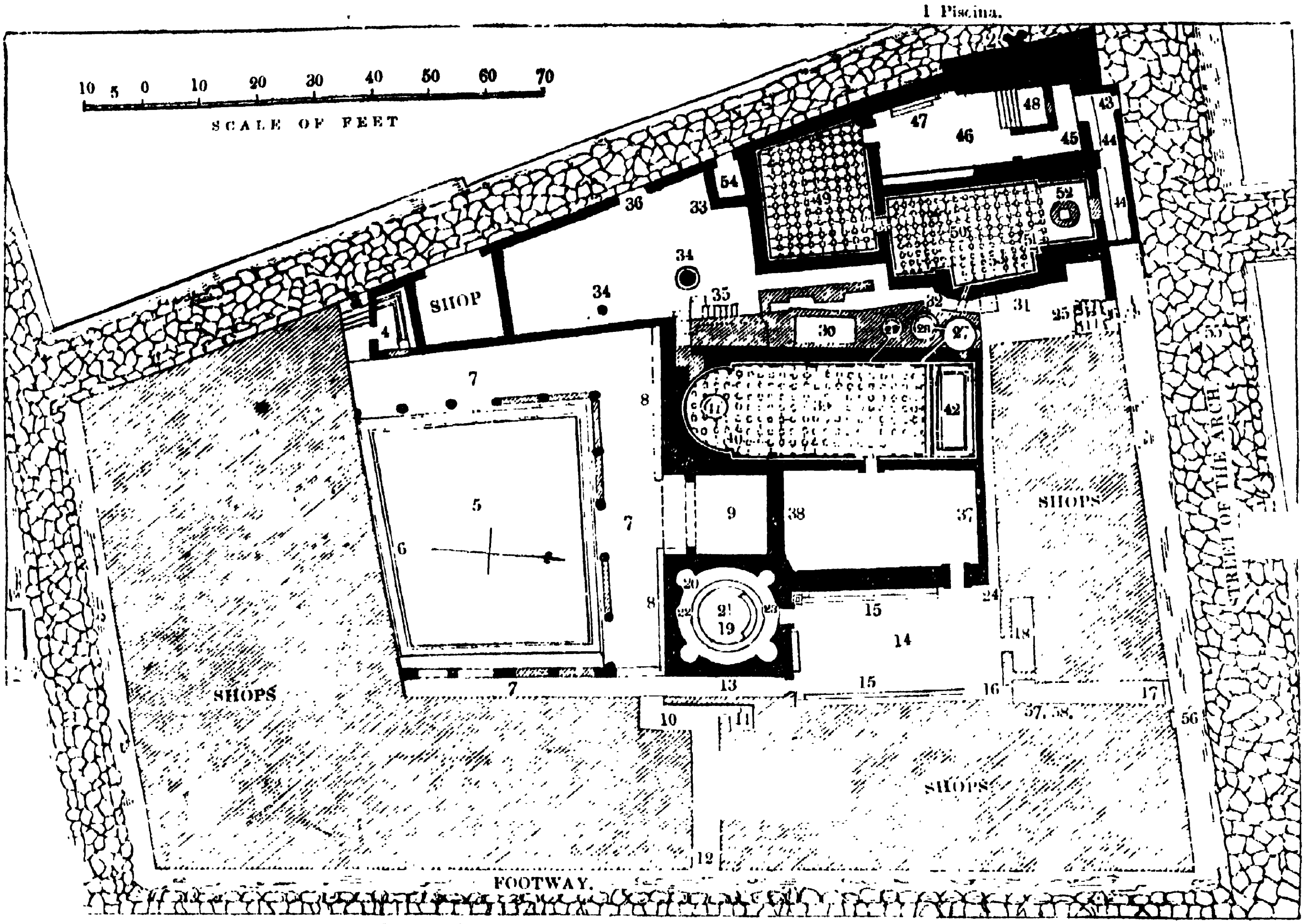
0 100 200 300 400 500

A, a circular room, over which was a roof of copper; B, the Apodyterium; C, the Xystus; D, the Piscina: E, Vestibules on the side of the Piscina, which served for the spectators and to contain the clothes of those who bathed; F, Vestibules at entering the Thermæ; on each side were libraries; G, G, Rooms where the wrestlers prepared for the exercises of the Palæstra, with a staircase to ascend to the upper story; H, H, the Peristyles, which we find in all the Roman Thermæ, having in the middle a Piscina for bathing; I, I, the Ephebium or place of exercise; K, K, the Elæothesium, or Elæothekium (Ελαιο-ϑέσιον-ϑήκιον); L, L, Vestibules, over which there is another room with a Mosaic pavement; M, M, Laconicum; N, N, Warm Bath; O, O, Tepidarium; P, P, Frigidarium; Q, Q, Rooms for the spectators and for the use of the wrestlers; R, R, Exhedræ for the philosophers; S, Stadium; T, T, Places for heating the water; U, U, Cells for bathing; W, W, Rooms for conversation; X, X, Cisterns of three stories to receive rain-water; Y, Y, the Conisterium; Z, Z, Recesses for ornament, and which served for the spectators to sit in; 1, Theatre for the spectators to see the exercises in the open air; 2, Apartments of two stories for the use of those who had the care of the baths; 3, 3, Exhedræ, where the gymnastic exercises were taught; 4, 4, Rooms for those who exercised in the Stadium; 5, 5, Atria to the academies; 6, 6, Temples; 7, 7, Academies; 8, 8, Arcades for the masters to walk in, detached from the noise of the Palæstra; 9, 9, Covered Baths; 10, 10, Stairs, &c., which led to the top; 11, 11, Stairs by which you ascended to the Palæstra.

Flaminius Vacca informs us that in 1471 there was to be seen in these baths an artificial island formed of marble, full of the remains of figures which had been carved on it. Near the island was a ship, with many figures in it, much broken. There was also a bathing vessel of granite. Two labra of granite, found in the same place, are now employed as fountains in the great square before the Farnese Palace at Rome. In these baths were also found the Farnese Hercules and the great group of statues known by the name of the Farnese Bull. Besides the great granite column now in the palace of S. Lorenzo at Florence, Piranesi tells us that he saw, in the peristyle, two fountains enriched with the remains of bas reliefs.

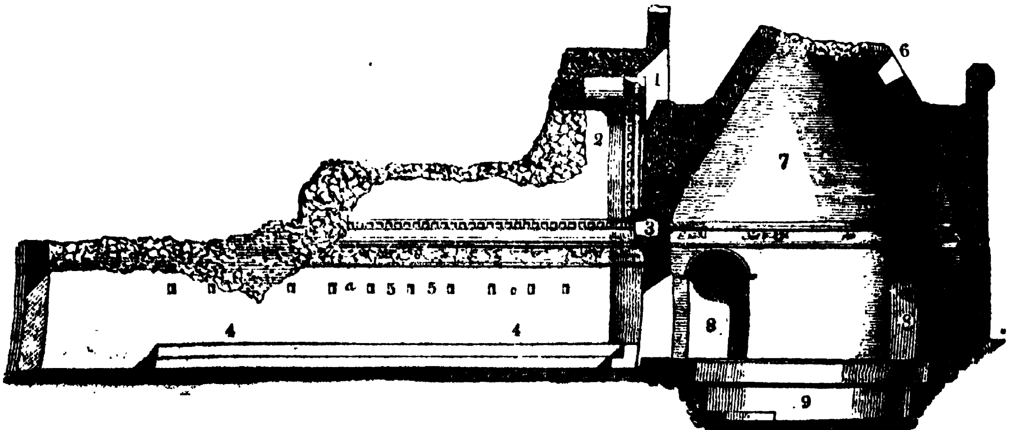
The provincial towns had also their baths, both public and private. The public baths of Pompeii, which were discovered in 1824, in a very perfect state, throw much light on what the Roman writers, and especially Vitruvius, have written on the subject. The following description of them is taken from the second volume of the *Pompeii*, (published by the Society for the Diffusion of Useful Knowledge), with a few verbal alterations, and some omissions. These baths occupy a space of about 100 feet square, and are divided into three separate and distinct parts. One of them was appropriated to the fire-places and to the servants of the establishment; the other two were occupied each by a set of baths contiguous to each other, similar, and adapted to the same purposes, and supplied with heat and water from the same furnace, and from the same reservoir. The apartments and passages are paved with white marble in mosaic. It is conjectured that the more spacious of the two sets of baths was for the use of the men, the smaller for the women.

Vitruvius (lib. v. cap. 10) says that the caldarium for the women should be contiguous to that for the men, and be exposed to the same aspect; for thus the same hypocaustum, or stove, may suffice for both. Annexed is the plan of these Pompeian baths, situated near the Forum.



[Plan of the Baths discovered in Pompeii, from the *Museo Borbonico.*]

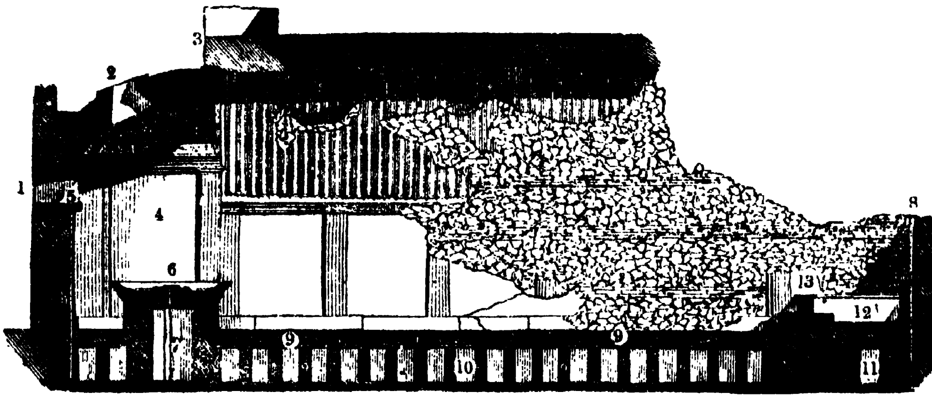
1, Piscina; 2, Street, over which was an aqueduct to convey the water from the Piscina to the baths; 3, Entrance to the baths of the men; 4, Watercloset; 5, Cortile, court, or vestibule to the baths; 6, Channel to collect the rain-water from the portico; 7, Colonnade round three sides of the vestibule; 8, Seats under the colonnade (*Scholæ*); 9, Oecus or exhedra; 10, Passage leading out of the baths; 11, Watercloset; 12, Entrance from the street of Fortune; 13, Passage leading into the Apodyterium; 14, Apodyterium; 15, Seats; 16, Passage leading to the street; 17, Entrance from the street of the arch; 18, Wardrobe; 19, Frigidarium; 20, Niches in the Frigidarium; 21, Alveus or vase of the Frigidarium; 22, a bronze spout, through which the water ran into the Alveus; 23, Pipe out of which the water escaped; 24, Passages which lead from the Apodyterium to the furnaces; 25, Apartment for the stokers; 26, Doorway leading from this apartment to the street of the arch; 27, Furnace; 28, Calidarium, or boiler for hot water; 29, Tepidarium, or receptacle for tepid water; 30, Frigidarium, or reservoir for cold water; 31, Stairs leading to the boilers; 32, Passage which leads from the boilers to the court, where the fuel for the stoves was kept; 33, the court for fuel; 34, Columns which supported the roof of the court; 35, Stairs which lead to the arched roofs of the baths; 36, Door opening into the street of the Forum; 37, Tepidarium; 38, Place where the bronze brazier was found; 39, Caldarium, having a suspended or hollow floor; 40, Laconicum; 41, Labrum; 42, Hot Bath; 43, Entrance to the baths for the women; 44, Vestibule with seats; 45, Passage leading to the Apodyterium; 46, Apodyterium; 47, Seats in the same; 48, Frigidarium; 49, Tepidarium; 50, Caldarium with a hollow pavement; 51, Laconicum; 52, Labrum; 53, Hot Bath; 54, a small room, use unknown; 55, Street, called the street of the arch; 56, Stairs; 57, 58, Two small voids without any communication.



[Section of the Apodyterium and Frigidarium of the Men's Baths.]

1, Window closed with one great pane of glass; 2, Decorated Archivolt; 3, a place for a lamp; 4, Seats of the Apodyterium with a raised step, serving as a footstool; 5, Holes in which were pegs for the dresses; 6, a Window; 7, Conical Ceiling of the Frigidarium; 8, Niches; 9, Alveus or marble vase.

The piscina or reservoir was separated at Pompeii from the baths themselves by the street which opens into the forum. The pipes which communicated between the reservoir and the bath passed over an arch thrown across the street. There were three entrances to the furnaces which heated the warm and vapour-baths. The chief entrance opened upon a court of an irregular figure, fit for containing wood and other necessaries for the use of the establishment, covered in part by a roof; the rafters of the roof rested at one end on the lateral walls, and at the other on two columns, constructed with small pieces of stone. From hence a very small staircase led to the furnaces, and to the upper part of the baths. Another led to the small room, called the præfurnium, into which projects the mouth of a furnace. In this room were the attendants on the furnace, or stokers (fornacarii), whose duty it was to keep up the fires. Here was found a quantity of pitch, used by the furnace-men to enliven the fires· the stairs in the room (25) led up to the coppers. The third entrance led from the apodyterium of the men's baths by means of a corridor (23). There is no communication between these furnaces and the bath of the women, which was heated *from* them. The furnace was round, and had in the lower part of it two pipes, which transmitted hot air under the pavements, and between the walls of the vapour-baths, which were built hollow for that purpose. Close to the furnace, at the distance of four inches, a round vacant space still remains, in which was placed the copper (*caldarium*) for boiling water; near which, with the same interval between them, was situated the copper for warm water (*tepidarium*); and at the distance of two feet from this was the receptacle (30) for cold water (*frigidarium*), which was square, and plastered round the interior, like the piscina or reservoir. A constant communication was maintained between these vessels, so that as fast as hot water was drawn off from the caldarium, the void was supplied from the tepidarium, which being already considerably heated, did but slightly reduce the temperature of the hotter boiler. The tepidarium in its turn was supplied from the piscina, and that from the aqueduct. The terms frigidarium, tepidarium, and caldarium were applied to the apartments in which the cold, tepid, and hot-baths were placed, as well as to the vessels already described under these respective names. The furnace and the coppers were placed between the men's baths and the women's baths, as near as possible to both, to avoid the waste of heat consequent on transmitting the fluids through a length of pipe. The coppers and reservoir were elevated considerably above the baths, to cause the water to flow more rapidly into them.



[Section of the Caldarium of the Men's Baths.]

1, Window; 2, a circular aperture by which the temperature was regulated; 3, another window; 4, Laconicum; 5, a place for a lamp; 6, Labrum; 7, Leaden pipe through which the water of the Labrum was either introduced or made its escape; 8, Hollow walls of the Caldarium; 9, Hollow pavement covered with Mosaic; 10, Small piers which support the pavement; 11, The communication between the hollow pavement and the furnace; 12, Hot Bath; 13, Steps to ascend the bath. (*Museo Borbonico*, vol. ii.)

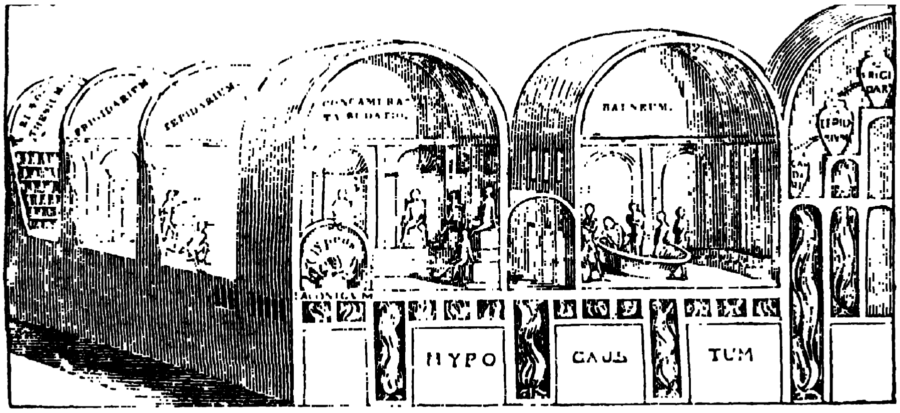
The men's bath had three public entrances (3,12,17). Entering at the principal one (12), which opens to the street leading to the forum, we descend three steps into the (5) vestibule, cortile, or portico of the baths, along three sides of which runs a portico (ambulacrum). The seats (8), which are arranged round the walls, were for the slaves who accompanied their masters to the baths, and for the servants of the baths themselves, to whom also the apartment (9) appears to have been appropriated. In this court was found the box for the quadrans, or piece of money, which was paid by each bather. Another door (17) leads to the same vestibule by means of a corridor. From the Street of the Arch (55) we proceed through the passage (17) into the apodyterium, or undressing-room (14), which is also accessible by another corridor (13) from a street called the street of the arch: a vast number of lamps were found here. The ceiling of this passage is decorated with stars. The apodyterium has three seats, made of lava, with a step to place the feet on; holes still remain in the wall, in which (it is conjectured) pegs were fixed for the bathers to hang their clothes upon. This room is highly decorated with stuccoed ornaments, relieved by colour. In the centre of the end of the room is a small opening or recess, once covered with a piece of glass; in this recess, as is plain from the appearance of smoke, a lamp has been placed. In the archivolt, or vaulted roof, immediately above, is a window two feet eight inches high, and three feet eight inches broad, closed by a single pane of cast glass two-fifths of an inch thick, fixed into the wall, and ground on one side: the floor is paved with white marble worked in mosaic, and the ceiling divided into pannels. In this room there are six doors, one leading to the præfurnium, another into a small room, perhaps designed for a wardrobe, the third by a narrow passage into the street; the fourth to the tepidarium; the fifth to the frigidarium; and the sixth, along the corridor to the vestibule or portico of the bath.

The frigidarium (19), or cold-bath, is a round chamber, with a ceiling in the form of a truncated cone; near the top is a window from which it was lighted. The plinth, or base of the wall, is entirely of marble, and four niches are disposed round the room at equal distances; in these niches were seats (scholæ) for the convenience of the bathers. The basin (alveus) is twelve feet ten inches in diameter, two feet nine inches deep, and entirely lined with white marble; two marble steps facilitate the descent into the basin, and at the bottom is a sort of cushion (pulvinus), also of marble, to enable those who bathed to sit down. The water ran into this bath in a copious stream, through a spout or lip of bronze four inches wide, placed in the wall three feet seven inches from the edge of the basin. At the bottom of the alveus is a small outlet, for the purpose of emptying and cleansing it; and in the rim there is a waste pipe to carry off the superfluous water: like the apodyterium, the frigidarium has been highly decorated, and is remarkable for its preservation and beauty. The tepidarium (37), or warm-chamber, adjoining the apodyterium, was so called, from a warm but soft and mild temperature, which prepared the bodies of the bathers for the more intense heat of the vapour and hot-baths, and *vice versâ*, softened the transition from the hot-bath to the external air. This apartment is decorated with niches, divided by telamônes [see ATLANTES]. The room was highly enriched, both with stucco ornaments and colour, and was lighted by a window two feet six inches high and three feet wide, in the bronze frame of which were found set four very beautiful panes of glass, fastened by small nuts and screws, very ingeniously contrived with a view to their being removed at pleasure. In this room a large bronze brazier and three bronze benches were found. A doorway led from the tepidarium into the caldarium, or vapour-bath (39); at one end was the laconicum, where a vase (41) for washing the hands and face was placed, called labrum; on the opposite side of the room was the hot-bath, called lavacrum. Vitruvius, in explaining the structure of the apartments, says, (cap. xi. lib. v.) 'Here should be placed the vaulted sweating-room, twice the length of its width, which should have at one end the laconicum, made as described above, at the other end the hot-bath.' This apartment is exactly as described, twice the length of its width, exclusively of the laconicum at one end, and the hot-bath at the other. The pavement and walls of the whole were made hollow, to admit the heat. Vitruvius never mentions the laconicum as being separated from the vapour-bath; it may therefore be presumed to have been always connected with it in his time, although in the thermæ constructed by the later emperors it appears always to have formed a separate apartment. In the baths of Pompeii they are united, and adjoin the tepidarium, in this respect exactly agreeing with the description of Vitruvius.

The laconicum is a large semicircular niche, seven feet wide, and three feet six inches deep, in the middle of which was placed a vase, or labrum. The ceiling was formed by a quarter of a sphere; and it had on one side a circular opening one foot six inches in diameter, over which, according to Vitruvius, a shield of bronze was suspended, which, by means of a chain attached to it, could be drawn over, or drawn aside from the aperture, and thus regulate the temperature of the bath.

The laconicum at Pompeii does not exactly correspond with the laconicum painted on the walls of the baths of Titus, and the laconicum described by Vitruvius. In the laconicum of Pompeii there is no cupola, such as we see represented in the painting of the baths of Titus, nor aperture in the floor, although the flue in the hypocaustum runs beneath it. The brazen shield also is applied to regulate the escape of heat through the roof, not to admit or exclude the smoke and flame coming direct from the furnace, as appears to have been the case in the baths of Titus. The latter was a clumsy and dirty way of heating a room, and strangely at variance, if it were really practised, with the finished elegance and luxury prevailing in every part of the Roman baths. The cupola in the baths of Titus might, however, have been a contrivance similar to our modern stoves for heating with hot air. Where this cupola did not exist, the room probably was heated, as at Pompeii, by a large brasier. The proper meaning of the word laconicum, whether it should be applied to the cupola and clypeus, or to the room in which they were placed, has been much disputed. It seems pretty certain that the name laconicum, which meant, in the first instance, the small cupola with the clypeus, became afterwards the name for that part of the room for which it was originally placed, even after the cupola had fallen into disuse, possibly from the discovery of a better method of heating the room.

Where the ceiling of the laconicum joined the ceiling of the vapour-bath, there was immediately over the centre of the vase, or labrum, a window three feet four inches wide; and there were two square lateral windows in the ceiling of the vapour-bath, one foot four inches wide, and one foot high, from which the light fell perpendicularly on the labrum as recommended by Vitruvius, 'that the shadows of those who surrounded it might not be thrown upon the vessel.' (Vitruv.)

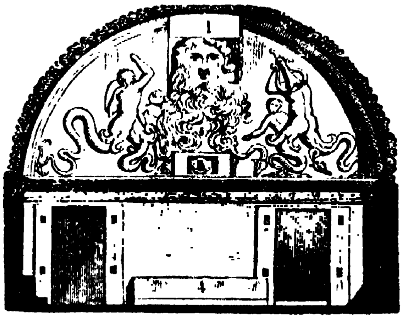


[Representation of Baths, from the paintings discovered in the Baths of Titus.]

The labrum was a great basin, or round vase of white marble, rather more than five feet in diameter, into which the hot water bubbled up through a pipe in its centre; it served for the partial ablutions of those who took the vapour-bath. It was raised about three feet six inches above the level of the pavement, on a round base, built of small pieces of stone or lava, stuccoed and coloured. In the Vatican there is a magnificent porphyry labrum, found in one of the imperial baths; and Baccius, a great modern authority on baths (see his work *De Thermis*, Venice, 1588, and Rome, 1622), speaks of labra made of glass. This apartment, like the others, is highly enriched. The hot bath (12) on the plan, occupied the whole end of the room opposite the laconicum and next to the furnace. It was four feet four inches long, and one foot eight inches deep, constructed entirely of marble, with only one pipe to introduce the water, and was elevated two steps above the floor, while a single step led down into the bath itself, forming a continuous bench round it for the convenience of the bathers.

The Romans, who, according to Vitruvius, called their vapour-baths caldaria, or sudationes concameratæ, constructed them with suspended or hollow floors, and with hollow walls communicating with the furnace, that the smoke and hot air might be spread over a large surface, and readily raise them to the required warmth. The temperature was regulated by the clypeus or bronze shield already described, which acted as a ventilator.

In the baths of Pompeii, the hollow floors are thus constructed: upon a floor of cement, made of lime and pounded bricks, were built small brick pillars, nine inches square, and one foot seven inches high, supporting strong tiles, fifteen inches square; the pavement was laid on these tiles, and incrusted with mosaic. The hollow walls, the void spaces of which communicated with the hollow of the suspended pavement, were constructed in the following manner. Upon the walls large square tiles were fastened, by means of iron clamps. These tiles were made in a curious manner; while the clay was moist, some circular instrument was pushed through the tiles, so as to make a hole, at the same time forcing out the clay, and forming a hollow projection or pipe, about three inches long, on the inside of the tile: these being made at the four corners, iron clamps passed through them, and fastened them to the wall. The sides of the apartments being thus formed, were afterwards carefully stuccoed and painted. The hollow space in the walls of the bath at Pompeii reaches to the top of the cornice; but the ceilings are not hollow, as in the baths which Vitruvius described, and which he distinguishes, for that reason, by the name of concameratæ. The ceilings of the apodyterium, tepidarium, and the caldarium are arched.



[Transverse Section of the Apodyterium.]

The women's bath resembles very much that of the men, and differs only in being smaller and less ornamented: for an account of it, we refer to Gell's *Pompeii*, the *Museo Borbonico*, and *Pompeii* published by the Society for the Diffusion of Useful Knowledge.

Vitruvius recommends a situation for baths, which is defended from the north and north-west winds, and he says that the windows should be opposite the south, or, if the nature of the ground will not permit this, at least towards the south, because the hours of bathing among the Romans being from after mid-day till evening, those who bathed could by these windows have the advantage of the rays and the heat of the declining sun. Accordingly the baths just described have the greater part of their windows turned to the south, and are constructed in a low part of the city, where the adjoining buildings served as a protection from the north-west winds.

The baths at Rome were on a much larger scale. The public baths of Caracalla were 1500 feet in length, and 1250 in breadth · 'at each end were two temples, one to Apollo, and another to Esculapius, as the tutelary deities of the place (*genii tutelares*), sacred to the improvement of the mind, and the care of the body; the two other temples were dedicated to the two protecting divinities of the Antonine family, Hercules and Bacchus. In the principal building were, in the first place, a grand circular vestibule, with four halls on each side, for cold, tepid, warm, and steam baths; in the centre was an immense square for exercise, when the weather was unfavourable to it in the open air; beyond it a great hall, where 1600 marble seats were placed for the convenience of the bathers; at each end of this hall were libraries. This building terminated on both sides in a court surrounded with porticos, with an odeum for music, and in the middle a spacious basin for swimming. Round this edifice were walks shaded by rows of trees, particularly the plane; and in its front extended a gymnasium for running, wrestling, &c. in fine weather. The whole was bounded by a vast portico, opening into exhedræ or spacious halls, where the poets declaimed, and philosophers gave lectures to their auditors. This immense fabric was adorned, within and without, with pillars, stucco-work, paintings, and statues. The stucco and paintings are yet in many places perceptible. Pillars have been dug up, and some still remain amidst the ruin; while the Farnesian bull and the famous Hercules, found in one of these halls, announce the multiplicity and beauty of the statues which once adorned the Thermæ of Caracalla.' (Eustace's *Classical Tour*, vol. i. p. 226.) For an account of the baths of Titus and Diocletian, see the same author.

On entering these baths the bathers first proceeded to undress. They next went to the elæothesium (the oil-chamber), as it was called in Greek, or unctuarium, where they anointed themselves all over with a coarse cheap oil before they began their exercise. (Plin. xv. c. 4 & 7.) Here the finer odoriferous ointments which were used on coming out of the bath were also kept (Plin. l. ii. *Epist.* 41.) and the room was so situated as to receive a considerable degree of heat. This chamber of perfumes was full of pots, like an apothecary's shop; and those who wished to anoint and perfume the body received perfumes and unguents. In the representation of a Roman bath, copied from a painting on a wall forming part of the baths of Titus, the unctuarium, called also elæothesium, appears filled with a vast number of vases. The vases contained a great variety of perfumes and balsams. When anointed, the bathers passed into the sphæristerium, a very light and extensive apartment, in which were performed the various kinds of exercises to which this part of the baths was appropriated. (Plin. lib. i. *Epist.* 101.) When its situation permitted, this apartment was exposed to the afternoon sun, otherwise it was supplied with heat from the furnace. (Plin. l. 11. *Epist.* 41.) After the exercise, they went to the adjoining warm-bath, wherein they sat and washed themselves. The seat was below the surface of the water, and upon it they scraped themselves with instruments called strigiles, which were usually made of bronze, but sometimes of iron or brass. (Martial, lib. xiv. *Epig.* 51.) This operation was performed by an attendant slave. The use of the strigil is represented on a vase, found lately on the estate of Lucien Buonaparte at Canino. The vase is large and shallow, and painted within and without. (Vol. i. p. 183. *Pompeii.*) From the drawings on it we learn that the bathers sometimes used the strigils themselves, after which they rubbed themselves with their hands, and then were washed from head to foot, by pails or vases of water being poured over them. They were then carefully dried with cotton and linen cloths, and covered with a light shaggy mantle, called gausape. Effeminate persons had the hairs of their bodies pulled out with tweezers. When they were thoroughly dried, and their nails cut, slaves came out of the elæothesium, carrying with them little vases of alabaster, bronze, and terracotta, full of perfumed oils, with which they had their bodies anointed, by causing the oil to be slightly rubbed over every part, even to the soles of their feet. After this they resumed their clothes. On quitting the warm-bath they went into the tepidarium, and either passed very slowly through or stayed some time in it, that they might not too suddenly expose their bodies to the atmosphere in the frigidarium; for these last rooms appear to have been used chiefly to soften the transition from the intense heat of the caldarium to the open air.

'It is probable that the Romans resorted to the baths, at the same time of the day that others were accustomed to make use of their private baths. This was generally from two o'clock in the afternoon till the dusk of the evening, at which time the baths were shut till two the next day. This practice however varied at different times. Notice was given when the baths were ready, by the ringing of a bell; the people then left the sphæristerium, and hastened to the caldarium, lest the water should cool. (Martial. lib. xiv. *Epig.* 163.) But when bathing became more universal among the Romans, this part of the day was insufficient, and they gradually exceeded the hours that had been allotted for that purpose. Between two and three in the afternoon was, however, the most eligible time for the exercises of the palæstra. Hadrian forbade any but those who were sick to enter the public baths before two o'clock. The thermæ were by few emperors allowed to be continued open so late as five in the evening. Martial says, that after four o'clock they demanded a hundred quadrantes of those who bathed. This, though a hundred times the usual price, only amounted to nineteen-pence. We learn from the same author, that the baths were opened sometimes earlier than two o'clock. He says that Nero's baths were exceeding hot at twelve o'clock, and the steam of the water immoderate. (Mart. lib. x. *Epig.* 48.) Alexander Severus, to gratify the people in their passion for bathing, not only suffered the thermæ to be opened before break of day, which had never been permitted before, but also furnished the lamps with oil, for the convenience of the people.' (See Cameron *On Roman Baths*, p. 40.)

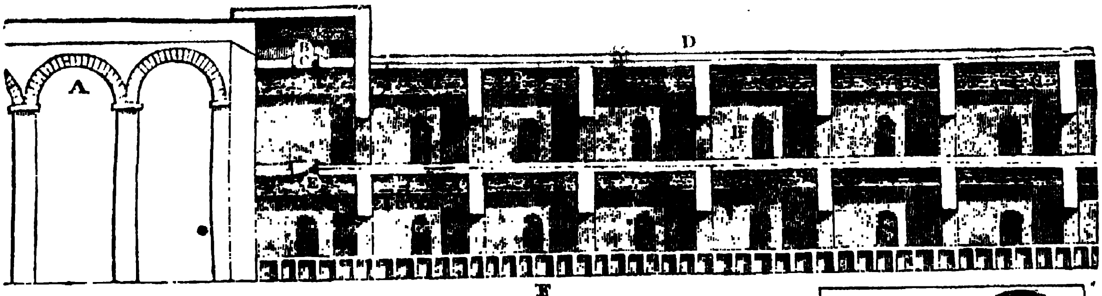
[Coin representing the Baths of Alexander Severus.]

The thermæ were constructed at a vast expense, and principally for the use of the poorer classes, though all ranks frequented them for the sake of the various conveniences which they contained.

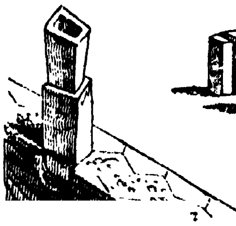
'Nothing relating to the thermæ has more exercised the attention of the learned than the manner of supplying the great number of bathing vessels made use of in them with warm water. For, supposing each cell of Diocletian's baths large enough to contain six people, yet, even at that moderate computation, 18,000 persons might be bathing at the same time; and as no vestiges remain of any vessels in the thermæ, to give the least foundation for conjecturing in what manner this was performed, it has been generally referred to the same process described by Vitruvius on a similar subject.

'Baccius has more professedly treated this subject than any modern author. He imagined that the water might be derived from the castella, which he observed to be situated without the thermæ; but as these castella were upon a level with the thermæ themselves, he thinks for that reason they were obliged to make use of machines to raise the water to such a height, as he observed it to have been by the ruins of Diocletian's baths. What led Baccius into this way of thinking was the number of pipes which he saw dug up under the open area, where there had never been any buildings, all of them surrounded with flues from the hypocaustum. He therefore imagined that the water was heated on the outside of the thermæ; but this supposition appeared so full of difficulties, as, upon reflection, to discourage him from inquiring any further into the subject.' (Cameron.) By the assistance of two sections of the castella of Antoninus, drawn by Piranesi, Cameron endeavours to show the method adopted by the Romans to heat the large bodies of water which their extensive thermæ must have required.

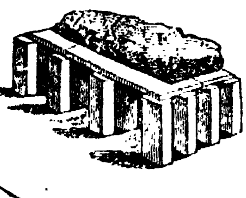
'To have a clear conception of the manner in which this was executed, it will be necessary to refer to a plate of these two sections.



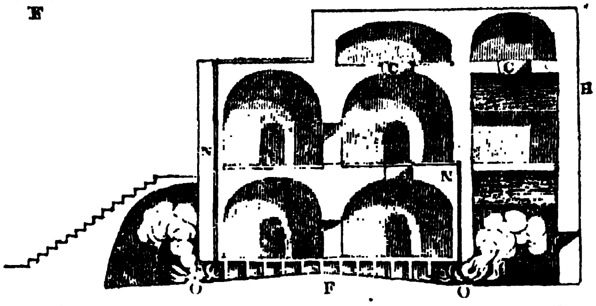
Longitudinal Section of the Castellum, placed at T, T, on the Plan, p. 25.



[Flues in the Floors and Walls.—From Cameron.]



[Specimen of Hollow Pavement.—From Cameron.]



Transverse ditto.

[Sections of the Castellum of Antoninus Caracalla.—From Cameron.]

'The castellum of the thermæ of Antoninus Caracalla was supplied with water by the aqueduct of Antoninus. Two of the arches of this aqueduct are represented at A: B is a cistern which received the water from the aqueduct; C is an aperture for permitting the descent of the water from the receptacle to the chamber below; D is a receptacle with a mosaic pavement, wherein the water was exposed to the heat of the sun; E is another aperture through which the water passed into the lowest chambers placed immediately over the hypocaustum; F, the hypocaustum; O O, doors for introducing the fuel. A transverse section through the middle of the same castellum is given at H.

'By the plan of this castellum, it appears that there were twenty-eight of these vaulted rooms placed over the hypocaustum: they were placed in two rows, fourteen on a side, and had all a communication with each other. The sections show, that over these were twenty-eight other rooms, having likewise a communication with each other, although only one of them had any communication with the chambers below, through the aperture at E. Upon the top of all was a spacious receptacle, not very deep, but extending the whole length of the castellum, in which the water was considerably heated by the influence of the sun, before it passed into the several chambers. This receptacle received its water from the cistern B, and not immediately from the aqueduct. The use of this cistern appears to have consisted in promoting a more gentle flow of the water into the receptacle, that its surface might not be ruffled by the least agitation, as that would very much have counteracted the purposes to which the receptacle was applied, nothing contributing so much as tranquillity in the water to acquire all the advantages from the influence of the sun its situation would permit. When there was no efflux from the inferior chambers, there could be no demands for water from the receptacle, which would have been liable to overflow were there not an aperture in the side of the cistern, through which the water ran off in different directions from that which was used for bathing. During all this time the water in the receptacle would be in the most perfect state of rest. The cistern, therefore, answered two material purposes, as it prevented any agitation in the water of the receptacle, and likewise carried off what was superfluous. The twenty-eight vaulted chambers, placed immediately over the hypocaustum, would now begin to be heated, which heat they would acquire so much the quicker, as only one of them had any communication with the external air by the apertures C and E. They therefore evidently were constructed upon the same principle as Papinius's digester, the strength of the walls and of the roof being sufficient to resist the force of the rarefaction of the air in the water, and consequently to prevent any loss from evaporation. Flues were still necessary to give the water a heat sufficient for bathing. The arched chambers were also supplied with flues, N N, from the hypocaustum, and served as a reservoir of tepid water for those below. The water they received was likewise heated by the sun. When the time for bathing was come, the cocks were turned to admit the hot water from the lower chambers into the labra of the baths, to which it would run with great velocity, and ascend a perpendicular height in the thermæ, equal to the surface of the receptacle in the castellum. The current would be accelerated by the great tendency the water would have to expand itself after having been confined in the chambers. The pressure of the column of tepid water was equal to, if not greater than the diameter of the column of hot water which ran out from the chambers below. To prevent the water cooling as it passed through the tubes underground, they were all carefully surrounded with flues from the præfurnium, so that these tubes were in the centre of a funnel, and always considerably heated before the water entered them. Each of these chambers was, within the walls, forty-nine feet six inches long, by twenty-seven feet six inches wide, and about thirty high; the number of superficial feet in the bottom of the rooms being 38,115. If we allow thirty feet for the mean height, the whole quantity of water in these lower rooms will amount to 1,143,450 cubic feet, and the like quantity must be allowed for the upper rooms; allowing, therefore, eight cubic feet of warm water as sufficient for one man to bathe in, and that water preserved in a bathing heat in the labrum half an hour, the whole consumption of hot water, in this given time, for 18,000 people, would be 144,000 cubic feet. By this calculation there would be a sufficient quantity of water for three hours, or until five in the evening, for 108,000 people. The water, however, would gradually cool as it flowed in from the higher chambers.

'We have no intimation from the antients when they first fell upon this expedient for heating such large bodies of water, whether it was the invention of the Romans or brought from the East. We may reasonably suppose, that as it was not necessary before the public warm-baths were built in Rome, it was not more antient than the time of Augustus, in whose reign we are told by Dion Cassius (lib. lv.) that Mecænas first instituted a swimming-bath of warm water, or a calida piscina.' (Cameron.)

But few Roman citizens in easy circumstances were without the luxury of a private bath, which varied in their construction according to the taste or prodigality of their owner. 'Amongst many articles of luxury for which Pliny censures the ladies of his time, he takes notice of their bathing-rooms being paved with silver. Even the metal flues of the hypocaustum were gilt.' (See Cameron *On Roman Baths*. For an account of the private baths, see *Pompeii*, vol. i. p. 199.)

The Persian manner of bathing, in some respects, is not unlike that adopted by the antient Romans. Sir R. Ker Porter describes it in the following terms:—'The bather having undressed in the outer room, and retaining nothing about him but a piece of loose cloth round his waist, is conducted by the proper attendant into the hall of the bath; a large white sheet is then spread on the floor, on which the bather extends himself; the attendant brings from the cistern, which is warmed from the boiler below, a succession of pails of water, which he continues to pour over the bather until he is well drenched and heated; the attendant then takes his employer's head upon his knees, and rubs in with all his might a sort of wet paste of henna plant into the mustachios and beard; in a few minutes this pomade dyes them a bright red. Again he has recourse to the little pail, and showers upon his quiescent patient another torrent of warm water; then, putting on a glove of soft hair, yet possessing some of the scrubbing-brush qualities, he first takes the limbs and then the body, rubbing them hard for three-quarters of an hour: a third splashing from the pail prepares the operation of the pumice stone; this he applies to the soles of the feet. The next process seizes the hair of the face, whence the henna is cleansed away, and replaced by another paste called *rang*, composed of the leaves of the indigo plant. To this succeeds the shampooing, which is done by pinching, pulling, and rubbing with so much force and pressure as to produce a violent glow over the whole frame. This over, the shampooed body, reduced again to its prostrate state, is rubbed all over with a preparation of soap confined in a bag till it is one mass of lather. The soap is then washed off with warm water, when a complete ablution succeeds by his being led to the cistern and plunged in. He passes five or six minutes enjoying the perfectly pure element; and then, emerging, has a large dry sheet thrown over him, in which he makes his escape back to the dressing room.' (Sir R. Ker Porter's *Travels*, vol. i. p. 231.) For a representation of shampooing in a Turkish bath, see the first volume of plates belonging to the great French work on Egypt. (*Etât Moderne.*)

The Russian baths, as used by the common people, bear a close resemblance to the laconicum of the Romans. 'They usually consist of wooden houses, situated, if possible, by the side of a running stream. In the bath-room is a large vaulted oven, which when heated makes the paving-stones lying upon it red hot, and adjoining to the oven is a kettle fixed in masonry, for the purpose of holding boiling water. Round about the walls are three or four rows of benches, one above another, like the seats of a scaffold. The room has little light, but here and there are apertures for letting the vapour escape; the cold water that is wanted is let in by small channels. Some baths have an ante-chamber for dressing and undressing, but in most of them this is done in the open court-yard, which has a boarded fence, and is provided with benches of planks. In those parts of the country where wood is scarce they sometimes consist of wretched caverns, commonly dug in the earth close to the bank of some river. In the houses of wealthy individuals, and in the palaces of the great, they are constructed in the same manner, but with superior elegance and convenience. The heat in the bath-room is usually from 32° to 40° of Réaumur, and this may be much increased by throwing water on the glowing hot stones in the chamber of the oven. Thus the heat often rises to 44° of Réaumur. The bathers lie quite naked on one of the benches, where they perspire more or less, in proportion to the heat of the humid atmosphere in which they are enveloped; while, to promote perspiration, and more completely open the pores, they are first rubbed, then gently flagellated with leafy bunches of birch. After remaining for some time in this state, they come down from the sweating-bench and wash their bodies with warm or cold water, and at last plunge overhead in a tub of water. Many persons throw themselves immediately from the bath-room into the adjoining river, or roll themselves in the snow in a frost of 10° or more. The Russian baths are therefore (*concameratæ sudationes*) sweating-baths; not of a moderate warmth, like the Roman tepidaria or caldaria, but very violent sweating-baths, which, to a person not habituated to the practice, bring on a real, though a gentle and almost voluptuous swoon.' (Tooke's *Russia.*) [See Bathing.]

The savage tribes of America are not wholly unacquainted with the use of the vapour-bath. Lewis and Clarke, in their voyage up the Missouri, have described one of them in the following terms:—'We observed a vapour-bath or sweating-house in a different form from that used on the frontiers of the United States or in the Rocky Mountains. It was a hollow square of six or eight feet deep, formed in the river bank by damming up with mud the other three sides, and covering the whole completely, except an aperture about two feet wide at the top. The bathers descend by this hole, taking with them a number of heated stones and jugs of water; and, after being seated round the room, throw the water on the stones till the steam becomes of a temperature sufficiently high for their purposes. The baths of the Indians in the Rocky Mountains are of different sizes, the most common being made of mud and sticks like an oven; but the mode of raising the steam is exactly the same. Among both these nations it is very uncommon for a man to bathe alone; he is generally accompanied by one, or sometimes several, of his acquaintance; indeed it is so essentially a social amusement, that to decline going in to bathe when invited by a friend is one of the highest indignities that can be offered to him. The Indians on the frontiers generally use a bath which will accommodate only one person, and is formed of wicker-work, about four feet high, arched at the top and covered with skins. Almost universally, these baths are in the neighbourhood of running water, into which the Indians plunge immediately on coming out of the vapour-bath, and sometimes return again and subject themselves to a second perspiration; and the bath is employed by them either for pleasure or health, being in esteem for all kinds of disease.'

In France there are baths in all the towns; and bathing is practised more than in Germany or England, where baths are rare. There are but few baths in London, and those established there would not suffice for a small fraction of the population, if bathing were a common practice. Still of late years baths have increased both in London and England generally.

Antient Roman baths have been found in several of the Roman villas in England; that at Northleigh in Oxfordshire, near Blenheim, is the most perfect. (See the account of the villa at Northleigh, Oxfordshire, by Mr. Hakewill.) Baths have been discovered also at Wroxeter in Shropshire, and near Arundel in Sussex. In the former, the suspended pavement was very perfect: in the centre of a chamber in that near Arundel is an octagon bath sunk in the floor, the pulvinus of which is quite perfect. There are also some curious Roman baths at Vallogne in Normandy.

(See Montfaucon, *Antiq.* t. iii. pl. 2; Cameron's *Roman Baths*; Gell's *Pompeii*; *Museo Borbonico*; *Pompeii*, by the Society for the Diffusion of Useful Knowledge; Eustace's, *Classical Tour.*)

BATHGATE, a burgh and parish in the county and presbytery of Linlithgow, 18 miles west of Edinburgh, 24 east of Glasgow, and 6 south of Linlithgow. The great road between Edinburgh and Glasgow passes by the southern extremity of the town. This road is distinguished for its singular levelness and firmness, and it may also claim a not inconsiderable antiquity, it being no doubt the same passage which was travelled by the monks of the abbey of Newbotle under the grant made to them in 1333, by Walter the Steward of Scotland, that they might freely pass with their carriages through his barony of Bathgate from their monastery to the monkland. (Chalm. *Caled.* vol. ii. p. 865.) Bathgate has been on the increase for many years past, which may be ascribed to a branch of the Glasgow cotton manufactures being established in it; to extensive coal and lime works in the immediate vicinity; to its admirable situation for grain and cattle markets (both well attended); to the great intercourse through it between the two cities above mentioned; and to other causes. It is a very healthy place, has a fine southern exposure, and is seen at a considerable distance to the west and south. The streets of the town are well-paved, the houses generally well-built and covered with slates or tiles, and the inhabitants are copiously supplied with excellent water, brought from the neighbourhood in leaden conduits. Gas-works were lately erected for lighting the town. The public buildings are, the parish church, a very plain edifice; three chapels for Dissenters (Relief and Burghers); a fine academy; parish school; jail; two masonic lodges, &c. The Earl of Hopetoun is patron of the parish. The academy, which stands on an elevation, a little to the south-east of the town, overlooking the great road, was erected about two years ago from funds bequeathed by the late John Newlands, Esq., of Kingston, Jamaica, a native of the town. These are vested in the parish minister, and three neighbouring proprietors (Sir William Baillie, Bart., Mr. Majoribanks, and Mr. Gillon, M.P.), whose attention to the trust reposed in them is deserving of much praise. The system of education adopted in this institution is of the most approved kind, and the manner in which it is conducted reflects great credit on the rector and other teachers. Instruction, in all the useful and learned branches, is obtained *gratis;* ample funds, for paying the teachers' salaries, being placed by Mr. Newlands in his trustees' hands for that benevolent purpose. All the youths of the parish, with the exception of such as have not been three years resident, enjoy the benefit of it. The railway, between Edinburgh and Glasgow, is to pass close to the town, and will, when completed, be of incalculable advantage to the district. The population of the town in 1831 was 2492, and it has increased since; the population of the parish was 3593. Under the Reform Act, the voters in the burgh join those in the county in electing a representative in parliament. This circumstance has tended much to raise the place into importance.

Bathgate has been a 'free burgh of barony' since 1663, in which year King Charles II. granted its charter; and in 1824 an act of Parliament was obtained, erecting it into a 'free and independent burgh,' and vesting the magistracy in a provost, three bailies, a treasurer, twelve councillors, town clerk, and procurator fiscal. These are chosen by the free votes of the burgesses: the qualification is less than that fixed by the Reform Act. Nowhere, in so short a space (ten years), have the benefits of popular and annual election of magistrates been so well exemplified. At a small expense to the inhabitants, the streets and wells are now kept in the best order, and the police of the town properly preserved. Bathgate has been a sheriffdom from a remote period. In 1530-1 Sir James Hamilton, of Finnart, obtained a charter of the office of sheriff of Renfrew, within the parish and barony of Bathgate, on the resignation of William Lord Sempil, hereditary sheriff of Renfrewshire; and in June, 1663, King Charles II. granted the barony to Thomas Hamilton of Bathgate, with the office of sheriff of Bathgate. In 1747, when the heritable jurisdictions were bought up, the sheriffship of Bathgate was hereditary in the noble family of Hope of Hopetoun, heritable sheriff of the shire of Linlithgow; and since the Jurisdiction Act the two shires have been under the same sheriffs, whose commission from the Crown styles him 'Sheriff of the Sheriffdom of Linlithgow and Bathgate.' In the immediate vicinity, and near to the new academy, is the site of an antient castle, traditionally said to have been given by King Robert the Bruce to his daughter Marjory, along with extensive possessions in the neighbourhood, as part of her dowry, upon her marriage with Walter, the Great Steward of Scotland. From these illustrious persons the Stuart race sprung; and from them the present royal family of Great Britain. (*Communication from Bathgate.*)

(Further particulars will be found in Sir John Sinclair's *Statistical Account of Scotland;* Penney's *Linlithgowshire;* Chambers's *Gazetteer, &c., &c.*)

* **BATHING**, means the temporary surrounding of the body, or a part of it, with a medium different from that in which it is usually placed. The means employed for this purpose are generally water, watery vapour, or air of a temperature different from that of the common atmosphere. The objects for which these are employed are usually the prevention of disease, the cure of disease, or the pleasure derived from the operation. To understand in what way these ends are accomplished, we must observe that the human frame is endowed with a power of maintaining, within certain limits, a nearly uniform temperature in whatever circumstances it is placed. The general temperature of an adult in a state of perfect health is from 97° to 98° of Fahrenheit's thermometer; that of a new-born infant about 94°. In some cases of disease the temperature rises far above this standard, even to 106°, while in others it sinks far below it. The power by which the body maintains a uniformity of temperature is the property of developing *animal heat*, the perfection of which function is intimately connected with the state of the nervous system, and through that, with the circulation. When the body is well nourished and the circulation vigorous, the temperature is high, and nearly equal over all parts of the body, provided the supply of nervous energy be adequate. If anything impairs the vigour of the circulation generally, or of an artery going to a particular limb (as when it is tied in the operation of aneurism), the temperature of the whole or of the part will be low. On the other hand, if the whole nervous system be impaired, a lower temperature will prevail generally, and especially at the extremities; or if a particular limb, such as a paralysed limb, have an imperfect share of nervous energy, a lower temperature of the part will exist. The respiratory function is also intimately connected with the development of animal heat, and the skin assists in regulating it, especially in reducing it when too high. When the body is placed in a medium of a temperature much lower than itself, the heat is abstracted from the surface with more or less rapidity, according to the difference of temperature, and, if the medium be air, according to its state of humidity or dryness; the effect of which would be a reduction of the temperature of the whole body, were it not counteracted by an increased development of animal heat. Again, when the body is surrounded by a medium much higher than itself, the exhalation from the surface, both of the skin and lungs, is greatly augmented: that from the former being thrown off in the form of perspiration, that of the latter in the form of vapour. The evaporation attending these processes causes a reduction of temperature. As illustrations of the truth of these two positions, we need not do more than allude to the nearly equal temperature of the body maintained by Sir Joseph Banks, Sir Charles Blagden, Drs. Fordyce and Solander, in their experiments, when the heat of the room was 260° of Fahrenheit (see *Animal Physiology, Library of Useful Knowledge*, part i. p. 3), and that maintained during the winter by the members of the expeditions under Captains Ross, Parry, and Franklin, when the thermometer frequently fell to 51° below zero of Fahrenheit.

In a moderate temperature the animal heat is generally prevented from rising too high by means of the *insensible* perspiration, the quantity of which varies with circumstances. According to the experiments of Seguin, the largest quantity from the skin and lungs together amounted to thirty-two grains per minute, or three ounces and a quarter per hour, or five pounds per day. The medium quantity was fifteen grains per minute, or thirty-three ounces in twenty-four hours. The quantity exhaled increases after meals, during sleep, in dry warm weather, and by friction, or whatever stimulates the skin; and it diminishes when digestion is impaired, and the body is in a moist atmosphere. These last-mentioned circumstances prove the sympathy which subsists between the skin and the internal organs. The skin must not, therefore, be regarded as a mere covering of the body, but as an organ, the healthy condition of which is of vast importance to the well-being of the whole frame, but especially of the stomach and lining membrane of the lungs, with which, as mucous membranes, it has the closest sympathy. It also sympathizes with the kidneys, the quantity of discharge from which is regulated by the action of the skin. Hence in summer, when the perspiration from the skin is abundant, the secretion from the kidneys is less; and when, in winter, the secretion from the skin is diminished, that from the kidneys is increased.

The perspiration is the channel by which salts and other principles, no longer useful in the system, are removed from it. According to Thenard, it consists of a large quantity of water, a small quantity of an acid, which according to circumstances may be either the acetic, lactic, or phosphoric; and some salts, chiefly hydro-chlorates of soda and potass. Taking the lowest estimate of Lavoisier, the skin appears to be endowed with the power of removing from the system, in the space of twenty-four hours, twenty ounces of waste; the retention of this in the system is productive of great injury, and the inconvenience is only lessened by the increased action of some internal organ, which becomes oppressed by the double load thus cast upon it. Even the retention of the perspired matter close to the skin, from neglect of changing the clothes, is the source of many cutaneous diseases, particularly in spring and summer.

The great vascularity of the skin, and the manner in which the vessels of this part are influenced by affections of the mind, as in blushing, when it becomes red from more blood being sent to it, and during fear when less blood goes to it, and more to the vicarious organs, as the kidneys, point out how an exposure to a cold and damp atmosphere and how mental emotions are concerned in producing morbid action of this organ. The skin must also be regarded as a net-work of nervous filaments, and the most extensive organ of sensation: in this way it enables us to judge of heat and cold, though not with absolute certainty, as the sensation conveyed will depend upon the temperature of the medium in which the body or any of the limbs may have been placed immediately before. To understand this doctrine, it is necessary to be acquainted with the action of heat and cold on the human system; in our explanation of which, we will endeavour to be as concise as possible. We treat first of cold; in doing which it is necessary to distinguish between the immediate *primary* action of cold on the organ or part with which it is brought into contact, and the *secondary* action, depending upon the organic activity residing in the part, or that train of effects usually denominated *reaction*. The primary effect is always the same, consisting in the abstraction of heat from the part, and the consequent reduction of its temperature, while the internal development of heat becomes greater, so that the organic life strives ever to maintain an equilibrium between the conflicting powers, in order that it may not be limited or disturbed in its healthy action. Yet it must be remembered, that both the external and internal degree of the primary action of cold, as also the period in which it slowly or suddenly shows itself, and the time, whether longer or shorter, that it lasts, occasion a variety of effects, both in the part to which it is applied, and those more immediately sympathizing with it, as well as in the whole system. The degree of primary action of cold can vary in endless degrees, from the lowest, where it scarcely affects the sensibility, to the highest, when it utterly destroys life. This difference of degree depends upon the concurrence of several circumstances, partly relating to the action of the cold itself, and partly to the nature of the organic life upon which the cold operates. The essential conditions which must be here borne in mind are, that the continual evolution of animal heat is closely connected with the development or exercise of animal life; and that the power or extent of action of external media, having a lower temperature than that of the animal they surround, depends less on the absolute degree of their temperature than upon the quantity of caloric which they can abstract in a given time.

The relative power and quickness of abstracting heat, with which different external media are endowed, depend upon different properties, such as their density, conducting power, capacity for heat, &c., and display themselves through the diversity of sensations which, at the same absolute temperature, they occasion. Thus, air at the temperature of 65° Fahr. feels pleasant, while water at the same degree feels somewhat cold. The organs of the body also differ in their power of sustaining the same temperature; hence, in the employment of vapour-baths, it is of importance to know whether the watery vapour is to be breathed or not, since, where it is to be breathed, the temperature must be much lower. The following table is given by Dr. Forbes as an approximation to what may be deemed correct as a measure of sensation in the cases where water and vapour are used.

	Water.	Vapour.	
		Not breathed.	Breathed.
Tepid Bath .	85° to 92°	96° to 106°	90° to 100°
Warm Bath .	92 „ 98	106 „ 120	100 „ 110
Hot Bath .	98 „ 106	120 „ 160	110 „ 130

As a full exposition of the subject of the temperature of animals will be given under the article **Heat, Animal**, we must refer to it for further details, confining ourselves here to remark that the ultimate action of cold, when extreme, is a sedative to the nervous system, and alters the circulation from external to internal; and that moderate cold continued causes the same consequences as severe cold of short duration (See Beaupré *On Cold*, Edinb. 1826.) Heat, on the other hand, is a stimulant to the nervous system, and alters the distribution of the blood from internal to external. Taking these principles as our guide, we proceed now to consider the different kinds of baths, and their action on the system in different states both of health and disease.

First, of water-baths. The common division is into cold and warm; but various subdivisions are formed, marked by a certain range of temperature, which are designated

1. The cold-bath, from 40° to 65°
2. The cool „ 65 „ 75
3. The temperate „ 75 „ 85
4. The tepid „ 85 „ 92
5. The warm-bath „ 92 „ 98
6. The hot-bath „ 98 „ 112

We shall treat first of the cold-bath, as applied to the whole surface of the body.

A healthy person upon entering a cold-bath experiences a sensation of cold, followed by slight shuddering, and if the immersion has been sudden, a peculiar impression on the nervous system, called a shock. The skin becomes cooler and paler, the respiration hurried and irregular, the action of the kidneys increases and the bladder contracts. In a few moments the colour and warmth return to the skin, and a glow is felt, especially if assisted by rubbing the surface. If the person remains more than five or ten minutes in the bath, the glow disappears, and paleness returns, which again gives place, though less quickly and perfectly, to a renewed glow. During the existence of the primary action of the cold, the bulk of the whole body, but especially of the more contractile parts, diminishes. Should the stay in the water be greatly prolonged, no reaction ensues, but a general feeling of chilliness prevails, with quick feeble pulse, convulsive breathing, cramps of the limbs, or fainting. If the person quit the bath after the few first minutes, as in prudence he should, the blood returns to the surface, accompanied with a sensation of pricking, itching, and sometimes throbbing of the arteries: the elasticity of the muscles being increased, more animal power is felt, accompanied with a general feeling of enjoyment.

Very young or feeble individuals are either incapable of bearing the shock, or the reaction is so slight that they cannot endure to stay in the bath beyond a very short time. If they unwisely stay or are held in the bath longer than one or two minutes, the heat never regains its proper height, the extremities remain contracted, and they, as well as the lips, nose, &c., are of a livid hue. In such cases either artificial means must be used to bring about reaction, or the bath must be relinquished, as improper for such persons, as we shall show at a future part of our observations.

The phenomena just described generally accompany cold bathing; and it is clear that we can recognize in them a series of three or even four distinct actions; viz., 1st, The shock; 2nd, The cooling effect; 3rd, The contraction or astringent effect; and, 4th, The re-action. Cold bathing may be employed, therefore, in such a way as to ensure the predominance of one action over any of the rest, according to circumstances, where all are not desired. They vary with the degree of cold and the suddenness of the application, as well as from the body being plunged into the water, or the water dashed against the body. Where the shock, as a stimulus to the nervous system, is desired, the water should be very cold, and where practicable should be dashed against the body, or, if the contrary, the stay in the bath should be momentary. This mode of using it may be either general or local. It has been employed generally, *i.e.* the whole body exposed to the action of the water, in mania, with occasional success, and in the early stage of the common continued fever (under certain regulations, for which see Currie's *Medical Reports*), sometimes with great success, cutting short the train of morbid actions which constitute the fever. It has been employed also in nervous affections, accompanied with a convulsive action, or deficient action of the muscular system, as in hysteria, in lock jaw (see *Paper* by Dr. Wright, *London Medical Observations and Inquiries*, vol. vi. p. 143): in some cases of obstinate constipation, dashing cold water on the person, or the cold bath frequently repeated, has been of great service.

Its stimulating effect is sometimes best procured by a local application, in the form of a stream of water falling on the head, from a considerable height. The simplest example of this is the common practice of sprinkling the face with cold water in case of a tendency to faint; and in many diseases of the most dangerous character, it is a remedy superior to any other. It is called the *cold dash*, or *douche*, or *douse*, and is beneficially employed in fever, particularly when the brain continues the seat of inordinate action of the blood-vessels, after depletion has been carried as far as prudence will allow. (See the instructive case of Dr. Dill in Dr. Southwood Smith's *Treatise on Fever*, p. 398.) It requires to be used with the greatest caution. Also in the state of stupor or *coma* which occurs in the last stage of *hydrocephalus acutus*, or water in the brain, it often succeeds in rescuing the patient from imminent danger. (See Abercrombie *On Diseases of the Brain*, first edit. 1828, p. 157.) Its utility is well known in the East in rousing drunken soldiers from their stupor so effectually as to enable them to rise up and appear immediately on parade.* In the melancholy and mania which overtake habitual drunkards it is of great efficacy, and also in cases of loss of nervous power from excessive mental exertion. In apoplectic stupor it has also been very advantageously employed. In the sinking stage of croup, when all other remedies have failed, cold affusion has sometimes restored the functions of life to new action.

The cooling or refrigerating effect of cold bathing is most desired in diseases where the animal heat rises above the proper standard, as in fevers, both continued and eruptive, especially scarlet fever; also in some local inflammations, particularly of the brain. For the principles which should regulate our practice in this application we must refer to Dr. Currie and other writers, only remarking that in the hot and restless stage of scarlet fever, when the heat is steadily above the natural standard, the skin hot and dry, and neither sleep nor perspiration can be procured, a plunge into cold water will be followed by both, to the relief and often recovery of the patient. (See Bateman *On Cutaneous Diseases*, edit. 1829, p. 120.) In applying cold locally, as in inflammation of the brain, one rule is of the utmost importance to be observed, viz., that the application of the cold shall be continuous; therefore a second set of cold cloths or bags of ice should be applied before the former has become warm. This plan, especially pursued during the night, along with judicious internal treatment, will save many children from perishing under the most insidious and fatal disease of childhood—water in the brain.

The cases already mentioned are mostly acute diseases, where the cold affusion is employed to avert an imminent but temporary danger. It is generally in chronic diseases that the cold bath is employed for a length of time, and in these it is chiefly the secondary effect, the glow or reaction, which is desired. The rules to be observed in order to obtain this effect are founded upon the strength, which is generally inferred from the age, of the individual. The degree of reaction is, for the most part, dependent upon the coldness of the water and the length of time the person remains in the bath. Very cold water, in which the person remains but a short time, will, in general, produce a greater degree of re-action than a more moderate temperature in which he remains longer. But here everything depends upon the general power of the individual, the state of the system, especially of the skin at the moment of immersion, and the nature of the bath, according as it is fresh or salt water, and also the season of the year. As the immersion of infants and young children in tubs of water must be considered as bathing, we deem it necessary here to explain the principles upon which the temperature of the bath for them should be regulated, especially during winter. The experiments of Dr. Edwards (see Edwards *On the Influence of Physical Agents on Life*, London, 1832) have proved that 'the power of producing heat in warm-blooded animals is *at its minimum at birth*, and *increases successively to adult age*.' It is clear, therefore, that water of a higher temperature than what feels cool to the hand of the nurse should be used, particularly in winter, when the power of regaining a proper degree of heat is necessarily less. The attempt to harden children by exposure to too great a degree of cold is of the most injurious nature; it either produces acute disease of the lungs, which are then very sensible to external impressions, or disease of the digestive organs, leading to disease of the mesenteric glands, scrofula, water in the brain, or, if they survive a few years, to early consumption. Delicate and feeble persons of all ages require a higher temperature of the bath, and a shorter stay in it than others. If the re-action does not speedily take place, means must be employed to ensure its so doing, or the use of the cold bath must be abandoned. A tepid or temperate bath may be used in the early treatment of feeble persons, and the cold bath gradually substituted for it, or a glass of wine, or, what is far preferable, strong coffee or chocolate may be taken before entering the bath. Where the arrangements are such as to admit of it, a brief stay in a warm bath before going into the cold has a good effect. Nor, in general, is danger to be apprehended from such a proceeding. Though in most cases moderate exercise is advantageous before bathing, unless the person has an opportunity of springing out of bed into the bath, still he should never think of undressing and going into the water when fatigued, or when the skin is covered with perspiration. It is a good rule to wet the head before taking the plunge. For a person in good health, early in the morning is the best time to bathe; for one more delicate, from two to three hours after breakfast is preferable; but no one should bathe immediately after a full meal, particularly if there be a tendency of blood to the head, and a disposition to apoplexy.

Exercise while in the bath, such as friction of the limbs and chest, or swimming, is advisable, but not even this can prevent evil consequences if the bather remain too long in the water. To say nothing of the risk of cramps and convulsive action of the respiratory muscles, from the blood being pent up in the large internal vessels, which may occur while the person is in the water, the foundation may be laid for future internal disease if the blood do not soon revisit the surface, either from the natural powers of re-action, or from friction with coarse dry cloths. Friction should follow the use of the bath in most instances, except where the bath has been in the sea, in which case the salt particles, if allowed to remain in contact with the skin, stimulate it more.

The cases of disease for which cold bathing is a valuable remedy are, morbidly increased irritability and sensibility, accompanied with general debility. If the sensibility be extremely high, it is best to begin with the tepid or cool bath, and pass gradually to the cold. Where there is a tendency to colds and rheumatism, the cold bath is an excellent preventive; for this purpose it should be used continually throughout the year, and the chest should be sponged with cold water, or vinegar and water may be substituted in winter, when there are not facilities for using the complete bath. Before beginning this practice, careful investigation of the state of the mucous membranes of the chest and intestinal canal should be made, as it will certainly prove hurtful where chronic inflammation of these organs exists. If tubercles are suspected to exist in the lungs, cold bathing should be dispensed with. Though cold bathing is very useful in a tendency to scrofulous diseases, it is very hurtful when these are really developed, though tepid and warm bathing are allowable.

Where the increased irritability shows itself in the mental functions or in the muscular system, as in hypochondriasis or hysteria, cold bathing is very useful; and especially in the hypochondriasis of literary persons, accompanied with a disposition to indigestion, and a dry harsh skin. In actual indigestion, especially if complicated with sub-acute inflammation of the mucous membrane of the stomach or intestines, cold bathing is very injurious.

In cases of torpor and loss of power, cold bathing is of much service; in a relaxed state of the skin, subject to debilitating perspirations, it is often the most effectual remedy; in weakness of the limbs, or of any member, and after sprains or paralysis, the local cold bath is very useful. The astringent as well as tonic effect of the cold bath is employed to prevent the prolapsus or descent of different parts: hence, in a tendency to hernia (or even when it has occurred, ice laid upon the tumor, and frequently renewed, has restored the bowel to its place, or at least warded off the inflammation till other means could be tried); in loss of power of the sphincter muscles, or of the contractile power of the bladder, pumping cold water on the back is very useful; but it should be used only for a minute at a time. In chronic hæmorrhages, cold applied locally or generally has a good effect.

The cold bath, like every other powerful agent, when improperly used, is capable of producing much mischief; in some states of the system it must be carefully avoided. In infancy and very advanced age it is less admissible than at other times, and even quite improper if the debility be great. It is inadmissible during, or immediately before, certain conditions of the female system; also when there is congestion of blood in the veins or internal organs: hence it is not suited to chlorosis. In any organic affection of the heart, or aneurism, it is altogether improper.

Of the cold shower-bath and douche we shall only observe here, that their effects are more speedy, and extend more to the internal organs: consequently they are only to be used for a very short time, whenever recourse is had to them. A glow of the surface is sooner felt after the shower than the common bath; and as soon as this is perceived the person should withdraw himself from the stream. If the douche falls upon the head, it produces almost instantaneous and most powerful effects. If its use be prolonged, it quickly lowers, then destroys, the sensibility, induces faintings, and places the patient in the most imminent danger. Medical superintendence is therefore required through every stage of its employment.

When the body is surrounded by media of a temperature in some cases lower, and in some higher than its own, it receives caloric, instead of parting with it. The difference of density and humidity is the cause of its receiving it from some media which are of a lower temperature than its own, as well as from most which are higher. This depends upon the capacity for caloric, and the conducting power of the surrounding medium. Thus, dry air at 70° Fahr. will impart heat to the body, while water at 92° will abstract it, though water at 96° may impart heat. The tepid bath, therefore, being so close upon the limit of abstracting or imparting heat, cannot exercise a very powerful effect upon the function of the development of animal heat; neither does it much affect the circulation, which it rather retards than quickens; but its influence is mostly confined to the skin, which it cleanses, softens, and renders more fit to execute its duties. The cases in which the tepid bath is to be preferred to that of a different temperature, are those of a febrile character joined to an irritability of the skin, which is generally dry and harsh; some cutaneous diseases, where, by friction, the scales are removed and a new surface presented; and, lastly, as preparatory to the cold bath in delicate persons, or for those whose peculiarities of system render them unable to bear a warm bath of a high temperature. It is of much use in the form of tepid sponging of the surface in the advanced stage of fevers, and in convalescence from acute diseases. In this case vinegar is often added to the water with increased good effect.

The primary effect of the application to the surface of the body of water of a temperature varying from 93° to 98°, is, in consequence of the communication of warmth, the same as that of dry heat, viz., a stimulating, enlivening, and expanding effect. Hence there is a quickening of the circulation and respiration, as well as the direction of a greater quantity of fluid to the surface, manifested by the swelling and redness of the part. There results also a freer and more lively action of the muscular system, and increased sensibility and activity of the nervous system. Diminished exhalation from the skin takes place, while a greatly increased absorption occurs; the exhalation from the lungs, however, is increased. An increased quantity of heat is thus introduced into the system, felt first in the superficial, but afterwards in the most internal parts of the body.

The secondary or ultimate effect is somewhat different. The increased action of the arteries gradually subsides, the pulse becomes fuller and slower, and the greatest quantity of the blood lodges in the veins, particularly in the great venous centres, such as the *vena porta* and the *liver*, which it stimulates to increased secretion of bile. Corresponding changes occur in all the other organs; and if the application of the warmth be continued for a longer time, the increased energy and elasticity of the muscles disappear, and a sense of fatigue, with atony, and a tendency to sleep, succeeds.

The final result of the action and re-action is an augmented secretion from the skin, and a corresponding diminution of urine, and of the secretion from the mucous surfaces.

The warm bath may be employed to effect two opposite ends, to stimulate, or calm and soothe. It accomplishes the first when its temperature is high (98°), and its use is confined to five or ten minutes; the second when it is about 93°, and continued for three-quarters of an hour, or an hour. Employed in this last way, Marcard found that it always diminished the velocity of the circulation, and that the longer the bath was continued the slower the pulse became; also, that the more the pulse deviated from a state of health, the more it is diminished by the warm bath. The bath may even be prolonged till it induce fainting and other consequences of a depressed circulation. Short of actual fainting it may be beneficially employed to produce great relaxation of the muscular system, so as to enable dislocations or hernias to be more easily reduced. The state of relaxation bordering upon fainting is very favourable to the process of absorption; it may, therefore, be advantageously employed in dropsy arising from weakness of the absorbents. As the warm bath has generally the effect of equalizing the circulation, and relieving internal congestion, it is much resorted to as a remedy in spasmodic and convulsive diseases; but here the utmost caution and discrimination are necessary. If the spasmodic actions result from an inflammatory state of any of the nervous centres, more harm than good will be done by a bath. The inflammatory condition must first be removed or greatly lessened by bleeding, purgatives, and other appropriate means, before the bath can be safely used. These cautions do not so strictly apply to the convulsive excitement which often precedes the eruption of small-pox, or even measles, which is often greatly relieved by the warm bath, which may also be repeated during the early stages of the eruption. (See Marcard, *Uber die Bäder*, Hanover, 1793, or Duncan's *Med. Comm.* 2nd Decade, part x. p. 153.) The convulsions of infants during teething are almost invariably attempted to be removed by the warm bath, but in many instances more harm than good is done. The condition of the brain must be carefully inquired into by the medical attendant, and the state of the gums investigated before this measure should be had recourse to. If there be congestion of blood in the brain this must be removed before any good can result from a bath, and after its removal the convulsive actions will generally subside. The same good effect will follow free scarification of the gums, if a tooth be preparing to protrude. [See ANTISPASMODICS.] Even when the bath is properly applied, the good which might be derived from it is often frustrated by inattention or ignorance. The bath is prepared at random, and the temperature is never sufficiently regarded. If above 96° it cannot fail to be injurious.

During the existence of all active inflammation, at whatever age, the warm bath may be pronounced an unfit measure; and even after the acuteness may have been reduced by active antiphlogistic means, the warm bath is a doubtful remedy, if we except a very few cases. Of these, inflammation of the peritonæum is the best marked exception; but even here the bath is a very secondary means towards lowering the action of the system, though it may assist the flow of blood from leech bites, and may be continued till a tendency to faint show itself.

In acute rheumatism, after venesection, the warm bath may perhaps be employed, if we can ensure its being followed by copious perspiration. For this purpose the patient should have the bath close to his bed, remain in it for half or three-quarters of an hour, be well rubbed with warm flannel cloths, replaced in bed between warm blankets, take diaphoretic medicines, and drink bland, warm fluids, such as gruel or weak tea, and maintain the perspiration for twenty-four or forty-eight hours.

In a disposition to gout or rheumatism the warm bath is more proper than when a paroxysm of these diseases occurs. In such cases the natural warm baths are preferable: those of the Queen's Bath, or Cross Bath at Bath, the temperature of which is from 94° to 96°, are well calculated for such cases.

In few chronic inflammatory diseases are warm baths allowable, if we except some of those of the digestive organs, especially sub-acute inflammation of the mucous membrane of the stomach and intestines. Indigestion is often the most common symptom accompanying this state, and it is almost always benefited by a course of warm or tepid bathing.

The other states to which warm bathing is unsuited are great general torpor, but especially of the skin; also when there is a tendency to profuse secretion from the skin; when there is great plethora or fulness of the vascular system, especially of the veins; in tendency to active hæmorrhage; in aneurism, or any disease of the heart; also in cases of a tendency to apoplexy: lastly, in extreme atony, or excessive irritability of the nervous system. In the very extreme cases of derangement of the nervous system the warm bath is unfit; in more moderate derangements of it, a more applicable or useful remedy cannot be found. In cases of nervous exhaustion from intense literary employment, or official or parliamentary duties, the warm bath is of great service, more particularly when, in addition to the warm bath, the cold douche is employed, directed upon the head for a few seconds, while the patient is in the bath. In the milder cases of mania it has been found of great use.

In cases of contractions of the joints from rheumatic or gouty inflammation, the warm bath, or, what is better, the local vapour bath, is of service in restoring the flexibility of the limb.

It may be briefly stated that the warm bath is much more serviceable when there is a tendency to disease, constitutional or accidental, or in convalescence, than in any other circumstances. It is therefore rather to be considered as a preventive than remedial measure. But its value in this point of view is very great; and it is to be regretted that it is not sufficiently appreciated and used. It is exceedingly beneficial as a means of allaying the irritation of the vascular system, which occurs in young persons disposed to consumption, when the disease is beginning slowly to impair the integrity and healthfulness of the lungs or other important organs. To prevent the development of the morbid deposit in the lungs is of infinite importance; and this will be best accomplished by keeping up a more vigorous action of the skin. The bath must be persevered in for a length of time. Proper bathing-rooms should exist in every well-constructed house; but as this is rarely the case in this country, a good substitute may be obtained by using some of the recently-invented bathing-machines, which combine facilities for using the different kinds of bath in the same apparatus. The best which we have seen is that made by Read, Regent Circus, which possesses an apparatus for applying the douche while in the warm bath, and may be used as a cold, a shower, a warm, a douche, or a vapour-bath: it is therefore called *The Universal Bath.* Baths should be attached to all large manufactories, as a refreshment for the workmen, to ensure cleanliness, and as a means of warding off many diseases: in lead-works, painters' and plumbers' establishments, they would protect the men from painters cholic; and in other establishments, they would preserve the workmen from many cutaneous diseases. 'A multitude of chronic inflammations of the skin are produced by uncleanliness, or other agents, which directly irritate the skin; and it is to the want of cleanliness in the inferior classes that Willan attributes the frequency of cutaneous diseases in London. In France, advantages are placed within the reach of the poor to which the rich alone aspire in other countries. The number of gratuitous baths which are given at the hospitals of St. Louis and La Charité is truly prodigious: in 1822 it amounted to 127,752 for the out-patients only of the hospital of St. Louis.' (Rayer *On Diseases of the Skin.*) Why some portion of the funds of hospitals and dispensaries in London, and other large towns, should not be applied in a similar way, we can see no good objection. There is as much philanthropy and benevolence in preventing disease as in curing it.

A partial warm bath, such as the foot-bath, is of much service in warding off many complaints. After getting the feet wet, plunging them into warm water will often prevent any ill consequences; and even when the first chill and slight shiverings, which usher in colds, fevers, and other inflammatory complaints, have been felt, the disease may be cut short by the use of a foot-bath, continued till free perspiration occurs. In inflammatory diseases where the head and throat are much affected, the employment of a foot-bath, at a later period, often gives great relief, by causing a revulsion of the blood from the upper to the lower part of the body.

Water of a temperature from 99° to the highest which can be endured, is termed the hot-bath. When a person in health enters such a bath, it greatly excites the nervous system, and, through that, the heart and arteries; causes heat and constriction of the skin, with disturbance of the internal organs generally, but especially those of secretion. This state of uneasiness is lessened by the breaking out of perspiration, which is succeeded by great languor, torpor, and disposition to sleep. In such a bath little absorption takes place through the skin, and the body is found to have lost weight. The hot-bath is a powerful stimulant, and can never be used by persons in a state of health. The same cautions which were stated under the head of the warm-bath apply to it in a greater degree. The few cases to which it is suited are chronic affections of the nervous system, such as paralysis, when all vascular fulness of the brain or spinal chord has been removed. The waters of the King's bath at Bath, and some of the hot-baths on the continent, are very beneficially employed in such cases; but careful discrimination must be made to suit the temperature to the degree of sensibility remaining in the paralysed part. Where the power of motion is lost, the sensation is sometimes increased. Here the hot-bath would be very hurtful. On the other hand the sensation may be lost, while the power of motion remains. Here equal care must be observed not to use too high a temperature. Erythema, erysipelas, mortification, or death may follow the use of too high a temperature or a stay too prolonged even in a proper temperature.

Sudden retrocession or repulsion of some cutaneous or eruptive diseases is relieved by the use of a hot-bath for a few minutes, the eruption often coming out favourably after it. Some chronic cutaneous diseases, in which great thickening or torpor of the skin exists, are benefited by the hot-bath.

Vapour-baths are either natural or artificial. Several natural vapour-baths exist in the Neapolitan States, in Switzerland (Pfeffers in the country of the Grisons), and in Ischia. The artificial vapour-baths are much in use in the East and in Russia, where they are public, or intended for several persons to use at the same time: and occasionally in Britain, where they are always solitary or for a single individual. The Russian baths are described in Lyall's *Character of the Russians*, p. 112—115. The bathing-room contains tiers of benches, like an amphitheatre, the seats nearest the bottom being the coolest, those higher up hotter. The temperature varies from 112° to 224°. Persons commencing the use of such baths occupy the lower seats, and ascend as they become accustomed to them. While exposed to the vapour, the body is washed or rubbed with soap or bran, and beaten with fresh birch-twigs. The head is surrounded with a cold cloth, or cold water is dashed over the head. When the person does not wish to breathe the heated vapour, a sponge which has been dipped in cold water is held to the mouth and nose. On first employing the vapour-bath, the person usually remains about fifteen minutes, but afterwards three-quarters of an hour, and at Pfeffers the temperature of which is only 100, sometimes four, eight, ten or sixteen hours. After coming out of the bath, the bather goes into a room heated with dry air, where he is rubbed, puts on a flannel dress, and then reposes upon a couch for some time, where he may drink warm drinks to promote the perspiration.

'As soon,' says Dr. E. D. Clarke, 'as the inhabitants of these northern nations have endured the high temperature of their vapour-baths, which is so great that Englishmen would not conceive it possible to exist an instant in them, they stand naked, covered with profuse perspiration, cooling themselves in the open air. In summer they plunge into cold water, and in winter they roll about in the snow, without sustaining injury, or even catching cold. When the Russians leave a bath of this kind, they moreover drink copious draughts of mead, as cold as it can be procured.' (*Travels in Russia,* part i. p. 143.) The absence of all risk in exposing the person to such extremes of temperature is explained by the experiments of Dr. Edwards, who found that 'after an exposure to cold, sufficient to diminish the power of producing heat, continuance in a high temperature tends to the recovery of this power; for, in exposing animals to successive applications of cold, their temperature will fall the more slowly the longer they shall have been subjected to the influence of warmth. It follows, therefore, that the effect of the application of a certain degree of heat is continued after the cessation of the cause. Hence, we see that those who are liable to frequent exposure of severe cold are rendered more capable of supporting it, by subjecting themselves in the intervals to a high temperature,—a practice adopted by northern nations, and justified by facts.' (Edwards on the *Influence of Physical Agents on Life,* p. 125.)

The vapour-bath is distinguished from all other means of introducing more heat into the body, chiefly by the circumstance, that as a portion of the vapour is converted into water, by coming in contact with the surface of the body, it communicates a quantity of sensible caloric to it. It is without doubt the most powerful means of supplying a great heat to the greatest portion of the surface of the body, internal as well as external; for when breathed, the extensive surface forming the interior of the lungs is influenced by it in the same way as the skin. On the skin it exerts a peculiar influence. It does not cause that constriction of the skin, which follows the application of dry air, nor does it exert that pressure upon the surface, which, in the case of warm water, retards the breaking out of the perspiration. On the contrary, moisture of the skin, followed by profuse perspiration, occurs immediately upon entering the vapour-bath.

In Russia, where such baths are used on a large scale, their employment is not found to be productive of weakness. The subsequent exposure to cold restores the tone of the skin which had been lost, and the process leaves the person with a general sense of good health, strength, and power, both of the internal organs and of the skin. 'These practices,' says Dr. Clarke, 'seem to delight them, and to add strength to their constitution.'

The vapour-bath, by attracting the blood more speedily to the surface, and by being followed by more profuse perspiration, is more powerful than the warm water-bath. It is employed as a remedy in gout and rheumatism, and in the numerous consequences of these when they have assumed the chronic form. Many cases of rheumatic and gouty contraction of the joints have been removed by persevering in the use of vapour-baths, as employed by the continental nations. In scrofulous diseases, especially when they affect the skin and the glands, benefit is derived from the vapour-bath, unless there be a manifest tendency to active inflammation, and great irritability of the nervous system. In some chronic affections of the nervous system, especially when connected with the repulsion or imperfect development of cutaneous diseases, the vapour-bath is of great use: and also in some affections of the respiratory organs, such as dry catarrh, asthma, spasms of the muscles of respiration, if these are not complicated with inflammation or organic disease of the lungs or heart.

The use of the vapour-bath would be found to ward off many acute diseases resulting from exposure to cold, if had recourse to immediately after exposure to the exciting cause; as after travelling, or falling into the water in winter.

The local application of warm vapour is very serviceable in many recent diseases. Catarrhs, sore throats of an inflammatory kind, inflammations of the eyes and ears, are greatly alleviated by such means. But when the lungs are inflamed, though Mudge's or other inhaler is much recommended, yet the effort required to draw in the vapour is injurious. The head, from which a flannel cloth may fall down, in such a way as to hinder the vapour from escaping, should be held over a bason full of warm water, and the vapour inhaled in the ordinary mode of respiration. The vapour-bath is very improper for plethoric persons, those predisposed to congestion, or to apoplexy, and also for individuals in a state of great debility.

The employment of heated air, as an application to the body, causes the primary action of heat to manifest itself more than the secondary. The hot air-bath is therefore powerfully stimulant to the skin and nervous system, and is of great service in all cases where the production of animal heat is less than natural, as in the cold stage of fevers, and exhaustion of the nervous power. It has been employed beneficially in congestive fever, and after great and continual mental exertion. It proved less useful in the Asiatic cholera than was anticipated. A convenient apparatus for applying it was invented by the late Dr. Gower, called a *Sudatorium*, and also others by Jones of the Strand, London.

Medicated baths rarely possess greater power than that possessed by the water alone; but there are a few exceptions. The admixture of common salt makes the water more stimulating and tonic.

Sulphurous vapour-baths fall under the head of medicated baths, and a few remarks may be here made respecting them. Nightmen, and other individuals who live much in an atmosphere charged with sulphurous exhalations, are rarely affected with chronic diseases of the skin, while other trades seem to predispose to their development, such as the baker's itch and grocer's itch. It is chiefly for the cure of cutaneous diseases that the sulphurous vapour-baths are employed. In many of these they are very useful, especially those belonging to the genus scabies and genus impetigo of Bateman. A caution is requisite for their safe employment, that the vapour should not be applied to more than a fourth part of the body at one time, lest the disease should be suddenly cured, and the internal organs suffer by the repulsion. The person who uses the sulphurous vapour-bath must be careful not to breathe any of the vapour. This kind of bath has been used in rheumatic affections, some diseases of the stomach, and in chronic paralysis. It may sometimes be a useful addition to internal treatment, but alone can be of little avail, till the state of the internal organs be improved, especially the liver, the action of which is almost always faulty in gout and rheumatism.

The nitro-muriatic bath of Scott is of use in chronic inflammation of the liver, such as occurs in warm climates. The iron-baths in Nassau and the Hartz are more tonic than the simple cold-bath: but none of the iron can be absorbed at the low temperature of these baths; it is only therefore by their direct action upon the skin, and the sympathies of this with the internal organs, that they are more beneficial. We have no knowledge of the effects of the mineralized mud baths, called by the Italians *Lutatura*. (See Gairdner *On Mineral Springs*, p. 404.)

Though unacquainted with the results of employing hot sand or ashes, as done by the Turks, we can conceive them useful in allaying cramps and neuralgic pains, as heat generally does in whatever way applied. A collection of the opinions of antient writers on the subject was published in the sixteenth century. (*De balneis omnia quæ extant apud Græcos, Latinos, et Arabes*, fol. Venet. apud Junt. 1553.) The best modern treatise is that of Marcard, in German, an abstract of which may be found in Dr. Beddoes's *Treaties on Consumption*. A French translation of it was published in 1802. The natural baths will be treated of under the article WATERS, MINERAL. (See Osann, *Encyclopædisches Wörterbuch der Med. Wissenschaft*, art. 'Bad,' vol. iv. Berlin, 1830, and Osann, *Darstellung der Heilquellen Europas*, 1829.)

BATHURST, ALLEN, EARL BATHURST, eldest son of Sir Benjamin Bathurst, governor of the East India Company in the years 1688-9, and treasurer of the household to the Princess Anne of Denmark, was born at Westminster in November, 1684. His descent was from an antient family of Luneburg, who resided at a place called 'Batters,' and settled in England in very early times at 'Batters Hurst' in Sussex. Of their property at this place the family of Bathurst were deprived, and the castle demolished during the civil wars of York and Lancaster. In 1699 Allen Bathurst was entered at Trinity College, Cambridge, of which his uncle, Dean Bathurst, was then master; and, six years after, commenced his political life as representative for the borough of Cirencester. As a member of the legislature he actively promoted the union of the two kingdoms, and concurred in the opposition to the Duke of Marlborough and his adherents, of which Harley and St. John were the leaders. In pursuing this course he probably acted from conviction and not as a political partizan, since, upon the dismissal of the Whig ministry, he accepted no place under government, though his abilities and connexion with some of the principal Tories entitled him to notice. He was, however, in 1711, made a peer of Great Britain by the title of Lord Bathurst, Baron Bathurst of Battlesden, in the county of Bedford. In the upper house he exerted himself in the debates on many of the important questions that were there agitated. In 1716 he opposed, as a violation of the constitution, the Septennial Bill. He distinguished himself in 1723 as a zealous defender of Bishop Atterbury, when the bill for 'inflicting pains and penalties' on that prelate was discussed in the House of Lords. In 1727 he opposed a war with Spain which then threatened the country; and in 1731 supported the bill to prevent pensioners from sitting in the House of Commons. On other occasions also of public interest,—in moving the address to the king for discharging the Hessian troops in the pay of Great Britain; in resisting the undue taxation of the poor, on the bill for the revival of the salt duty: in advocating the motion of the Earl of Oxford for the reduction of the forces, and in the debate on the mutiny bill, Lord Bathurst took an active and decided part; and, during the whole period of which this narration is a brief review, he showed himself a steady opponent of Sir Robert Walpole's administration.

Lord Bathurst was married, in 1704, to Catherine, daughter and heiress of Sir Peter Apsley, by whom he had four sons and five daughters. In 1742 he was made captain of his majesty's Band of Gentlemen Pensioners, which post he resigned in 1744. He was appointed treasurer to George III., then Prince George of Wales, in 1757, and this office he held till the death of George II, in 1760, when he declined the acceptance of any further employment, on account of his age. In consideration, however, of his previous services, he received a pension of 2000*l.* per annum on the Irish establishment, and was advanced to an earldom in 1772. He died at his seat near Cirencester on the 16th September, 1775, aged ninety-one.

In his private character Lord Bathurst was generous and affable; that he possessed knowledge and acquirements as a man of letters may be inferred from his long and intimate acquaintance with Pope, Swift, Prior, Rowe, Congreve, Arbuthnot, Gay, and Addison; and the sincerity of his political friendships was manifested in his firm and strenuous opposition to the attainder of Bolingbroke and Ormond. Mr. Pope acknowledged his obligations by dedicating to Lord Bathurst the 3rd Epistle of his *Moral Essays*, and in the following lines pays a happy compliment to the judgment and integrity of his patron:—

> The sense to value riches, with the art
> T' enjoy them, and the virtue to impart,
> Not meanly nor ambitiously pursued,
> Not sunk by sloth, nor raised by servitude;
> To balance fortune by a just expense,
> Join with economy magnificence;
> With splendour, charity; with plenty, health;
> O teach us, Bathurst! yet unspoil'd by wealth,
> That secret rare, between the extremes to move
> Of mad good-nature, and of mean self-love.'

The only surviving son of Lord Bathurst, Henry, the second earl, born in 1714, was made Chief Justice of the Common Pleas in 1754, and in 1771 was appointed Lord Chancellor with the title of Baron Apsley. He resigned the seals in 1778, and died in 1794. He was the author of a pamphlet in 4to. entitled *The Case of Miss Swordfeger*, and of a work on the *Theory of Evidence*, 8vo.

BATHURST, a settlement of the English on the west coast of Africa, is situated on the south-eastern extremity of the island of St. Mary, at the mouth of the river Gambia, in 16° 6′ W. long., and 13° 28′ N. lat. The greatest length of the island is about four miles, but its general breadth does not exceed one mile and a half, and in some places it is much less. The surface of the island is a low plain, with a slight descent from the north and east sides towards the centre, which during the season of rain is much inundated. The town itself does not stand more than twelve or fourteen feet above the level of high-water mark. The settlement, although in its infancy, has made rapid advances in improvement. Many fine and substantial government buildings have been erected; and the merchants residing there have vied with each other in the elegant and convenient arrangement of their dwellings and warehouses, all of which are built with stone or brick, and roofed with slates or shingles. The population of this settlement has been greatly increased, not only by British merchants, but by a large influx of the inhabitants of Goree, who have emigrated to Bathurst. This emigration was caused by the people not finding employment under the French government, and also by their being excluded from the trade of the Gambia, except through the medium of St. Mary's, or of the small factory belonging to the French at Albreda, beyond which they were not allowed to ascend the river. The inhabitants are abundantly supplied with beef, mutton, poultry, fish, fruit, milk, butter, palm-wine, and all the African vegetables, by the natives of the surrounding towns, who, sensible of the advantages they derive from the settlement, flock to it in great numbers, and consume a large proportion of the European articles imported into the colony. Gold, ivory, bees'-wax, and hides are brought to Bathurst in considerable quantities by the native traders, and by the inhabitants of Goree who have settled there. These products are annually shipped for England by the British merchants. (Gray's *Travels in Western Africa in* 1818, 1819, 1820, and 1821.)

BATHURST, in New South Wales, one of the counties into which that part of the territory of the colony which lies west of the Blue Mountains has recently been divided. At first the whole of this part of the country was distinguished by the name of Bathurst, but it is now divided into several counties, of which one only retains the original denomination. The country west of the mountains was not discovered until 1813, but has since rapidly risen into notice on account of its excellent cool climate, and its fine rich pastures, flats, and downs. The climate and soil are in many parts well adapted to agriculture, which has partially been attended to, with the very best results in some places; but the distance from a market, and the want of easy access to the coast, prevents any settler from raising produce beyond the wants of his own establishment. As all the rivers beyond the Blue Mountains run westerly, and terminate in the immense interior swamps, the outlet of which is yet unascertained, the absence of a water communication with Sydney and the eastern coast has obliged the settlers to confine their attention chiefly to the rearing of sheep and cattle. By far the greater proportion of the wool exported from the colony comes from this territory, and, with cheese, forms the only article which interior settlers have to give in exchange for tea, sugar, clothing, and other things which they require. This must be understood as applying generally to the appropriated territory beyond the Blue Mountains, including, besides Bathurst properly so called, the counties of Westmoreland and Roxburgh at least. The census of 1833 seems to include the entire transmontane population under the head of Bathurst, as no mention is made of other counties. The result gives a population of 3454, of whom 2000 are convicts. The total number of females, free and convicts, does not exceed 523. In the restricted sense, Bathurst is the westernmost county of the colony, extending 55 miles in length from N.N.W. to S.S.E., with 42 miles of extreme breadth from E. to W.

The small town of Bathurst is 744 yards above the level of the sea, on the west bank of the Macquarie river, at the distance of 122 miles from Sydney, to which there is a carriage road. It is yet in its infancy; but as no situation west of the Blue Mountains can be preferable, it will, no doubt, ultimately become a place of considerable importance—a sort of capital to the interior. Its healthiness may be estimated from the fact, that only one death took place in the first twelve years of the settlement. It now possesses a very fair proportion of respectable settlers in comfortable circumstances, who have established a society, called 'The Bathurst Literary Society,' with the view of forming a library for the use of the members, and of promoting the improvement of the community by the discussion of interesting topics. A hunt, called 'The Bathurst Hunt,' was established several years since by the gentlemen of the place, for the purpose of coursing the native wild dog. The recent accounts of the ravages of these animals in the pastoral districts of New South Wales show the great importance of this object beyond the mere purposes of sport. Mr. P. Cunningham mentions among the signs of the rapid progress which Bathurst has made, that it possessed several years ago a boarding-school, in which Greek, Latin, and other branches of education, were professed to be taught.

(Cunningham's *Two Years in New South Wales;* Breton's *Excursions in New South Wales;* Strutt's *Expeditions in Australia;* Dawson's *Present State of Australia; New South Wales Calendar*, 1834.)

BATHURST INLET is a deep bight on the eastern shores of George the Fourth's Coronation Gulf. It runs to the S.E. about 76 miles, and was explored by Captain Franklin in his overland journey to the Polar Sea in 1819. (Franklin's *First Journey to the Polar Sea.*)

BATHURST ISLAND, one of the North Georgian group, in the Arctic Seas, was so called by Captain Parry, who first discovered it in his passage to Melville Island in 1819. Its appearance was high, barren, and rugged, the highest part exceeding 600 feet, and the shores generally steep. There was no opportunity of landing on it. The southern coast only was traced for a distance of 75 miles from 97° 50′ to 103° W. long., lying in an E.S.E. and W.N.W. direction, on the parallel of about 75° N. lat. (Parry's *First Voyage in* 1819-20.)

BATMAN (pronounced BAWMAN), a person allowed by the government to every company of a regiment on foreign service. His duty is to take charge of the cooking utensils, &c., of the company. There is in the charge of the batman a bathorse (pronounced bawhorse) for each company, to convey the cooking utensils from place to place. For the purchase of this horse the officer commanding the company is allowed a sum of money, and forage is also provided at the government expense for the horse. For regiments on duty in the kingdom the batmen and bathorses become unnecessary, as the soldiers are billetted on the inns, public-houses, and beer-houses.

BATMAN, a weight used in Persia, and at Aleppo, Constantinople, Smyrna, and other places in the Levant. In the Turkish dominions a batman contains six okes, each weighing 400 drachms. At Constantinople, silks from Persia are weighed by the batman of six okes. In Persia, there are two sorts of batman: the batman of Cherray, and the batman of Tauris. The former is exactly double the latter. The batman of Cherray weighs 88,771 English grains. (See Kelly's *Universal Cambist*, 4to. Lond. 1831, vol. i. pp. 4, 72, vol. ii. pp. 226, 278.)

BATN-EL-HAJAR (*i. e.* 'the Womb of Rocks'), or *Dâr-el-Hajar* ('the Mansion of Rocks'), is the name of a stony wilderness, stretching along the Nile from the district of Succot in the south, to Wâdi Halfa in the north. In the map of the course of the Nile, drawn by Col. W. M. Leake, which accompanies Burckhardt's *Travels in Nubia*, it is laid down between 21-22° N. lat. and 30° 35′-31° 10′ E. lon. of Greenwich; in Rüppell's map, between 21° 10′-50′ N. lat., and 30° 40′-31° 10′ E. long. The Nile, during its progress through the upper part of this district, as far as Wâdi Mershed, is often forced into a narrow channel by the close approach of the mountains on both sides; and towards the north of Wâdi Mershed navigation is interrupted by frequent cataracts, rocks, and small islands. A few spots only admit of cultivation, which consist of narrow strips of land situated along the Nile: but even here the banks are generally so high, that the annual inundations of the river do not reach the plains, and the soil must be irrigated by means of water-wheels. The mountains of Batn-el-Hajar consist of primitive rocks, principally of greenstone and grauwacke, and towards the south of Seras, of granite; they differ in this respect from the hills accompanying the Nile below Wâdi Halfa, where the prevailing rock is sandstone. The mountains on the eastern side of the Nile reach their greatest elevation towards the south: the Jabal Lamoule, above Wâdi Ambigo, is noticed by Burckhardt as one of the highest. Another group of high hills called Jabal Bilingo, is found farther towards the north, between Wâdi Attar and Seras. In his route from Wâdi Attar to Wâdi Ambigo, Burckhardt had to cross over a high mountain pass in the hills, named Jabel Doughe.

The small strips of level land on the banks of the river were formerly populous and well cultivated, but are now thinly inhabited. The number of the present male inhabitants of the whole district of Batn-el-Hajar is estimated by Burckhardt not to exceed 200. They consist partly of Beduins of the tribe Kerrarish; partly of Arabs, who pretend to be Sherîfs, or descendants of the family of Mohammed, from Mecca. The chief of the latter, who is distinguished by the title of *melek*, or king, is tributary to the governors of Nubia, and resides at Wâdi Attar, or Attyu, the principal village of Batn-el-Hajar. In consequence, however, of the frequent incursions of the Sheygya Arabs (who live on the southern banks of the bend of the Nile in Dongola, at a distance of eight days' journey from Succot across the desert), the greater part of the Sherîfs have now quitted this neighbourhood, and have settled partly in the district of Succot, and partly in Dongola. Most of the Sherîfs speak a little Arabic. They are described as being remarkably well made, with fine features, and of a dark brown colour. They go naked, and the women are in the habit of wearing leather amulets round the neck, and copper ornaments on their arms and wrists. They dwell chiefly upon the little islands of the river, where they are less exposed to the attacks of the predatory Arabs than on the banks of the river.

Rüppell, who in 1823 passed through the part of Batn-el-Hajar situated on the western side of the Nile, describes that district as consisting of a chain of syenite hills along the banks of the river, and beyond them, as far as the eye could reach, a tract of moveable sands, the dreary uniformity of which was but seldom interrupted by projecting dark cliffs of primitive rock. On the western bank of the river, towards the south of Wâdi Halfa, Rüppell found many deserted villages and monasteries: the local appellation of the latter is *Sulli*. Nearly the whole of the western part of Dâr-el-Hajar is now uninhabited. At Semne (in 21° 30′ N. lat.) Rüppell saw the ruins of a large and apparently antient village or town, with several temples in a mixed Roman and Egyptian style of architecture. (See Edward Rüppell's *Reisen in Nubien*, &c., Frankfurt, 1829. 8vo. pp. 12, 13.)

The vegetable productions of Batn-el-Hajar are few. Date-trees are occasionally found in the *wâdis* or valleys that intersect the hills and slope towards the Nile. At Wâdi Seras Burckhardt saw a few cotton-fields and bean-plantations. *Dhourra* is scarce. The principal food of the inhabitants consists of beans, and the grains of a shrub called *kerkedan*, which grows wild here. Another leguminous plant, the *symka*, is used as food for camels, and from its grains an oil is prepared which the natives use instead of butter.

At the southern extremity of Batn-el-Hajar, the village of Wâdi Okame, or Ukme, is situated: this place is often visited by pilgrims who perform their devotions at the tomb of a Mohammedan saint, Sheikh Okashe, who is buried here. At a distance of two hours' ride S.S.W. of Okame is the island of Kolbe, the residence of the chief of Succot. (J. L. Burckhardt's *Travels in Nubia*, Lond. 1819. 4to. p. 42-50.)

BATOLI'TES, in zoology, a genus of fossil shells established by Montfort, and placed by him among his *coquilles univalves cloisonnées*. Cuvier, however, who quotes the observations of M. Deshayes and of M. Audouin, considers them as cylindrical and straight hippurites, and places them under his family of ostracés or ostraceans, among those fossil bivalves which are supposed to have had their valves connected by no ligament but by mere muscular adhesion, and immediately before the oysters. Montfort states that these shells acquire a very great length, and that they constitute masses of rock in the High Alps. [See Birostrites and Hippurites.]

BATRA'CHIANS. [See Frogs.]

BATRACHOMYOMA'CHIA (Βατραχομυομαχία), *the battle of the frogs and mice*, is the title of a Greek poem, consisting of 294 hexameter verses. This poem, though generally ascribed to Homer, and printed with the editions of the Iliad and Odyssey, undoubtedly belongs to a late age, and is attributed by Plutarch and Suidas to Pigres, of Halicarnassus, in Asia Minor. Pigres is called by Suidas the brother of that Artemisia who was the wife of Mausolus. [See Artemisia.] This poem, however, is probably the composition of some still later writer of the Alexandrine school. Some critics consider it a satirical poem: as it is not very long, the reader may form his own opinion without much trouble. (See Parnell's *Translation into English verse.*)

BATTA, an allowance made to military officers in the service of the East India Company, in addition to their pay. As the officers of King's regiments serving in India receive their pay according to the scale fixed by his Majesty's regulations, and which pay is below the emoluments derived by officers of similar rank in the regiments of the East India Company, the allowance of batta is made also to them by the Company, and is so adjusted as to preserve an equality of income between the two services.

The scale of allowance under the name of batta varies not only with the circumstance of the regiments being in the field or in cantonments, but also according to the part of the country in which they are stationed.

Batta was originally given with the intention of enabling officers to provide for field-equipment, and for those extra expenses which they must incur when marching, but it early lost this character when it was continued to officers in cantonments. In November, 1828, the distinction was made between the amount allowed when in actual service, and when in cantonments: before that time no difference was made. The effect of the alteration is this: that at particular stations of the army, where an officer formerly got full batta, he now gets half that batta, with an allowance for house-rent, which is inferior to what the other half of the batta would be. The half-batta of a lieutenant-colonel is 304 rupees (about 30*l.*) per month; his allowance for house-rent is 100 rupees. A major's half-batta is 228, and for house-rent 80 rupees per month; captain's half-batta, 91, and house-rent, 50 rupees; lieutenant's, 61, and 30 rupees; ensign's, 46, and 25 rupees. Colonels of regiments, not being general officers on the staff, nor holding offices specially provided for, are allowed the full batta of 750 rupees per month at any station, but they have not any allowance for house-rent. It was estimated, that by carrying into effect the regulation of November, 1828, the government of the East India Company would save 12,000*l.* per annum. (*Report of Committee of the House of Commons on the Affairs of India*, 1832, part 5, *Military.*)

BATTALION. This name is applied to a certain division of the infantry in an army, corresponding, nearly, to the *chiliarchia* in a Greek phalanx, and to the *cohort* in a Roman legion. The number of men composing a battalion is variable, but in the British service, according to the present establishment, it is, in general, about 750. One battalion in most cases constitutes a regiment, but some regiments, as those of the guards, consist of two battalions, and the regiment of artillery consists at present of eight, besides the brigade of horse artillery. It seems, therefore, that, originally, the name of regiment was applied to the body of men organized for a particular district, or a particular branch of service; and that, when the numerical strength of the regiment exceeded what was considered convenient, it was divided into two or more battalions.

The phalanges of the Greeks, and the legions of the Romans, with their respective constitutions and divisions, will be described under the words Phalanx and Legion.

The destructive effects of fire-arms among dense bodies of men necessarily caused the close order of battle used in antient warfare to be abandoned: though, down to the middle of the eighteenth century, an opinion that the troops could not otherwise resist effectually a charge of the enemy, and the desire to form them with facility into a column for attack, induced commanders of armies to draw up the battalions in a line from four to six files deep. But the numerous casualties which still occurred, led subsequently to the practice of forming the line in three ranks; and in the latest regulations for the disposition of the British army, it is prescribed that the battalions are to be drawn up in two ranks only. The argument in favour of this method, which, it may be observed, was recommended, in 1783, by Turpin, the commentator of Vegetius, is, that in action two ranks of men only can fire at once, and as the third rank can be no otherwise employed than in loading, and handing the muskets to the men in their front, this service scarcely compensates for the loss occasioned by the exposure of so many men to the enemy's fire. A foreign writer, however, contends that with soldiers as well disciplined as those of Russia, three ranks would be more advantageous than two: since the men in the middle rank are enabled to fire a second time with the muskets obtained from those in the third rank, immediately after they and the front-rank men have made their first fire, so that a much less interval takes place between the vollies than that which occurs when the line consists of only two ranks.

During the wars which arose out of the Revolution in France, the armies of that nation became habituated to a formation in close columns instead of a line of small depth. This practice, which seemed to be a return to the tactics of the antients, possesses some advantages when an attack is to be directed against an enemy's line which is too far extended to allow the divisions to succour each other in time; and the great merit of Napoleon consisted in manœuvring so as to lead his opponent to fall into this error, and then overwhelming him by numerous consecutive and powerful attacks directed against the weaker part of his line. The system, however, seems to have been persevered in too tenaciously by the French generals; for, against steady troops, their columns not only suffered serious losses in making the assaults, but were incapable of keeping up a fire equal to that which might have been produced by a more extended order. Such was the error committed by Marshal Soult at the battle of Albuera. According to Napier (*History of the Peninsular War*), 'that general persisted beyond reason in fighting with dense columns, and thus lost the fairest field ever offered to the arms of France. Had the fifth corps of the French opened in time,' the historian observes, 'nothing could have saved the British army from a total defeat.'

A battalion is now generally divided into ten companies; and, for convenience in performing the movements which may be required, each company is subdivided into two equal parts, and each of these into sections. The battalion is commanded by its own colonel; and several battalions or regiments are, on service, united under one general officer: these constitute a brigade, and may be considered as a small legion. According to the present regulations each man occupies in line twenty-one inches, and, as no intervals exist between the companies, the extent of a battalion formed two deep is about 219 yards. Six paces are left between every two battalions, and the same interval only separates one brigade from another.

The company of grenadiers occupies the extreme right, and the light infantry company the extreme left of the battalion: these are called the flank companies, and the others take their places from right to left, according to the numbers by which they are designated. The captain, or officer commanding each company, is stationed in the front line on the right of his company; and immediately behind him, in the rear rank is his covering serjeant. The lieutenants, ensigns, and the serjeants of the companies form a third, or what is called a supernumerary, rank in rear of the others, at the distance of three paces. The two regimental colours are placed in the front rank between the two centre companies, and two non-commissioned officers are in the rear rank behind them; a serjeant is stationed in the front, between the colours, another stands opposite to him in the rear rank, and a third in a line with both, in the supernumerary rank. These last-mentioned serjeants serve to direct the march of the battalion when it moves parallel to its front; for which purpose, on that occasion, they form themselves in a line in that direction, and march before the battalion at the distance of six paces.

The commander of the battalion places himself in front when he has to superintend the ordinary exercises, otherwise his station is in the rear. The lieutenant-colonel is behind the colours in rear of the supernumerary rank; the majors are in rear of the second battalion companies on the right and left flanks respectively, and the adjutant in a line with them, opposite to the centre. The situations of the *Staff* of the battalion, the musicians, &c., together with the particulars above briefly stated, are fully described in the treatises on the field exercises and evolutions of the British army.

Originally the grenadiers performed the duty of throwing hand-grenades, or small iron shells charged with powder, among the enemy; and the firelocks of the fusileers and light infantry were different from those of the other troops; but, except the riflemen, who use pieces with barrels *rifled*, or grooved, all the infantry of the line carry the same kind of musket.

The principal evolutions of a battalion consist in reversing the front of the line, taking a position at right-angles to its actual front; forming a column by bringing the different companies or their subdivisions parallel to, and directly in rear of each other, either at open or close intervals; forming a column *en échelon*, or with the divisions parallel to, but in positions receding from, each other towards the right or left, in the manner of steps; or, lastly, forming a hollow square. By changing the front, a retrograde movement in line may be made; by forming the line perpendicularly on either flank, an attempt of the enemy to turn it may be opposed. Columns are formed for the purpose of marching along roads or through defiles, or advancing in a body towards an enemy's position; a movement en échelon allows troops to gain ground obliquely towards the front or rear; and a hollow square is formed in order to resist an enemy in every direction, when the battalion is in danger of being surrounded.

A regiment of cavalry now consists of three squadrons; each squadron of two troops, and the numerical strength of each of these is about 80 men: but from that number one-sixth is to be deducted for the men not under arms. The cavalry are formed two deep, and each file occupies three feet in front; no interval is left between the troops, but that between every two squadrons is one-fourth of the actual strength of each. A regiment of cavalry, when complete, will thus occupy about 233 yards in front.

(Turpin de Crissé, *Commentaires sur les Institutions Militaires de Végèce*; Daniel, *Histoire de la Milice Françoise*; Okounef, *Examen Raisonné des Propriétés des Trois Armes*; Bismark on the *Tactics of Cavalry*, translated by Major Beamish; *Regulations for the Formations, Field Exercises, and Movements of his Majesty's Forces*, corrected to 1833. For many particulars relative to the present state of the British army, the *Monthly Lists* may be consulted.)

BATTARDEAU. [See COFFERDAM.]

BATTAS. The large portion of the island of Sumatra which is known as the Battas country, is situated between the equator and about 2° 30′ N. lat. With the exception of the principality of Siak on the north-east coast, and of some settlements at the mouths of rivers, which are in possession of Malays, this country includes the whole of the space between those parallels. On the south-east it is bounded by the principalities of Rawa and Menancabow, and on the north-west by the kingdom of Atcheen.

The Battas country, which by the inhabitants is called *Batak*, is divided into several provinces, which are subdivided into districts. The names of the principal provinces are Toba, Mandeling, Angkola, Humbang, Si Nambila, Looboo, Manambin, Palampungan, Barumim, Sama Jambu, Pangaran, Lambung, Silendung, Butur, Holbang, Linton, Dairi, Alas, Karaw, and Ria.

The most populous of these districts are those situated about the centre of the country, and particularly Toba, Silendung, Holbang, and Linton. The great Toba Lake, which lies in a direction nearly north-east from the Dutch settlement of Tapanooly (which is in 1° 40′ N. lat., and 98° 50′ E. long.), has never yet been visited by any European. Messrs. Burton and Ward, Baptist missionaries on the island, to whom this lake was pointed out from some high land at a considerable distance, describe it as being from 60 to 70 miles long, with a breadth of from 15 to 20 miles. The surface of the lake was described to those gentlemen as being sometimes so rough as to prevent the passage of boats to and from an island in the middle, on which a periodical market is held. Several streams, one of them of considerable size, flow into the Toba Lake, and if it be true, as their guide stated to Messrs. Burton and Ward, that its waters rise and fall twice in the course of the twenty-four hours, it is probable that further examination would show it to be an arm of the sea.

Our information with regard to the people forming the Battas tribes is so scanty, that any statement we can give respecting their system of government must be liable to uncertainty. It is said that the supreme government over the whole of the districts is exercised by one chief, who lives at the north-western extremity of the Toba Lake. By this chief a deputy is appointed for each district, who, assisted by a council composed of the leading inhabitants, conducts the political affairs of the district; he frames laws, declares war, makes peace, and administers justice. The authority of these deputies is very much controlled by the councils with whom they act, so that the different districts may be considered as so many oligarchies. The more minute functions of government are otherwise performed, each village forming, in this respect, a distinct community, and possessing within itself the power of framing regulations for its own municipal government. The inhabitants of the different districts are so little held together by the authority of the chief governor, that it is not unusual for two or more villages to be engaged in war against each other, while the rest of the nation is at peace. It is probably owing to their system of government, as well as to their inland situation, and to the ease with which their few natural wants can be supplied, that these people have retained unaltered their primitive habits and character. Compared with the Malays of the coast, although they are less enterprising, the Battas are more industrious. A great part of the necessaries of life required at such of the Malayan settlements as are within their reach is supplied from the Battas country.

These people consider themselves to have been the earliest settlers on Sumatra, and they have a tradition that their forefathers came from a country lying to the east of that island, but their belief upon this subject is very vague, and they exhibit so many points of resemblance to Hindus, that it appears more probable they must originally have come from India. The resemblance here spoken of is shown in their persons: they are of middle stature, well made, and have prominent noses. Their religious notions, likewise, savour strongly of Hindu origin. They believe in the existence of a Supreme Creator of the world, who has committed the charge of its government to three sons, who, in their turn, have delegated to inferior gods the duties of their office. The names of these gods are said to have a strong resemblance to those of the Hindu mythology. This system of faith is burthened with numerous superstitions. The people believe in the constant interposition of good and evil genii in their worldly affairs, and every village has its peculiar demons or spirits, chiefly composed of the souls of the deceased inhabitants. As might be supposed, under the influence of such a belief, the person who exercises the office of priest, and who is frequently the head man or rajah of the village, is a person of great consequence, to whose advice and assistance recourse is had upon all occasions. The Battas do not appear to have any idea of an existence beyond the present, and their religious prejudices and fears being thus limited to merely the objects of sense have little or no influence over their moral conduct.

The well-ascertained fact of their cannibalism has occasioned them to be considered brutal and ferocious in their nature, an opinion which appears to be by no means well founded; they are, on the contrary, quiet and timid to a greater degree than even Hindus. Their principal food is rice and batatas. Meat they seldom or never taste, but when they do indulge in it they are not particular as to the description or condition of the animals they eat. According to Marsden, their indulgence in anthropophagy is limited to the devouring of persons slain or taken prisoners in war, and of certain classes of criminals. Robbers, if taken in the fact, are publicly executed and eaten forthwith, but if they elude immediate detection, a slighter punishment than loss of life is awarded. Men taken in adultery are subjected to the same revolting punishment, with this additional circumstance, that they may be eaten piecemeal without being previously put to death. It is not considered lawful to eat the bodies of persons taken or slain in the wars or feuds which occur between different villages or districts, but only such as fall into their power in what may be considered as national contests. An account has very recently (1835) been received in Europe of the killing, and probably also the eating by the Battas, of two English missionaries, who were proceeding through the country in the direction of the great Toba Lake. It appears that the tribe among whom the missionaries fell were at the time engaged in war with another tribe, and they might easily, under those circumstances, put a wrong construction upon the unusual appearance of strangers among them. It is said to be the opinion of persons near to the spot, and therefore better able than we can be to form a correct judgment on the case, that if the two missionaries had taken the precaution to send a messenger before them, to explain the pacific object of their journey, they would have met with hospitable welcome, instead of the melancholy fate that has befallen them. Dr. Leyden, in his work on the languages and literature of the Hindo-Chinese nations, states that the Battas frequently also eat their aged or infirm relations, as an act of pious duty. When, among them, a man becomes infirm and tired of life, he is said to invite his children to eat him: he ascends a tree, round which his friends and descendants assemble, and the whole of them join in singing a dirge, the burthen of which is 'The season is come, the fruit is ripe, and it must descend.' The victim then descends, is deprived of life, and his remains are devoured in a solemn banquet. This practice of the Battas eating their aged parents has been compared with the usage of the Padæi of India mentioned by Herodotus (lib. iii. 99); and Dr. Leyden has conjectured, perhaps rather hastily, that the Padæi and the Battas are the same people. A similar practice prevailed amongst the Massagetæ (Herod. i. 216), and among the antient Tupis of Brazil.

Slavery exists among the Battas. The classes who are reduced to this state of degradation are their own countrymen, and generally orphans, prisoners taken during their intestine wars, or debtors. To satisfy a debt, no matter how contracted, and probably the result of a game of chance (for these people are great gamesters), not only the man himself, but his whole family also, may be sold into slavery.

The custom of the country authorises every man to have as many wives as he can purchase; and, as usually is case where such a custom prevails, the wives perform all the drudgery, and are in fact considered to be little better than slaves. It is not often that a man has more than two wives at the same time.

The Battas have a written language, which bears a considerable resemblance, both in sound and construction, to that of the Malays: it has by some persons been considered a dialect of the Malayan tongue. The spoken language is somewhat different—a circumstance which may very naturally arise, in progress of time, among a people of whom only a very small proportion are able to use or understand the written characters. It is said that not more than two persons in one hundred among the Battas are able to read. Such books as they have are chiefly upon astrology, omens, and other subjects of a superstitious nature. Many persons among them show skill in poetry; and it forms part of their social amusements to undertake contests in improvising, which they keep up for hours together with considerable spirit.

It is principally in the Battas country that the camphor-trees of Sumatra are found: none, it is said, grow south of the equator. The camphor which these trees yield is considered to be so good in quality, that it sells in the markets of China for more than ten times the price paid for that produced in Japan, and which is yielded by a different plant. The camphor-tree of Sumatra grows without cultivation, and attains to a size equal to that of the largest timber trees, being frequently above fifteen feet in circumference. Camphor in the Battas language is called *Kapūr*, of which the European name is a corruption. In Eastern markets it is known as *Kapūr Baroos*, the latter word being the name of the town on the coast of Sumatra whence it is shipped.

Benjamin, or benzoin, is almost exclusively a product of the Battas country. Marsden says that large plantations of the trees by which it is yielded (the *Styrax benzoin*) are cultivated by the natives. The other vegetable productions of this part of Sumatra are common to the whole island. [See Sumatra.]

The entire population of the Battas country has been estimated at 1,500,000 souls, but this computation must be altogether conjectural.

(Marsden's *History of Sumatra*; *Asiatic Researches*; Porter's *Tropical Agriculturist*; *Library of Entertaining Knowledge*, *Vegetable Substances used in the Arts*.)

BATTENS, pieces of wood of various lengths, 7 inches wide and generally not exceeding 2½ inches in thickness when imported. They are used for floors, and are also placed upright against walls to fix the laths on which the plastering is set. East-country battens, as imported, are nches wide and 2½ inches thick, which, when planed up d shot, are cut into two boards each 1¼ inch thick. uch battens are used for the best floors; but in attics, and oms of less importance, for economy, the batten is cut into ree boards. When used for walls, the 7 and 2½ inch battens are cut into six pieces lengthways, being then something less than 2½ inches wide and 1¼ inch thick, allowance being made for the sawing. Battens are usually placed at the distance of seven inches asunder, but sometimes eleven or twelve, which is, however, considered slight work; if double laths are used, it will then be sufficiently strong to carry the plaster. The battens are nailed to the bond-timbers of the wall; or, if there are no bond-timbers, to wooden plugs placed at equal distances. Walls of brick and stone, when not sufficiently dry to be finished in the usual way, require battens for the lath and plaster; and it is of the utmost importance to employ battens in exposed situations, especially on the sea coast, where the driving rains will often penetrate the walls.

Battens from the British possessions in North America, when 6 and not exceeding 16 feet long, nor above 7 inches wide and not above 2¾ inches thick, pay a duty of 1*l.* per 120. Battens of the same dimensions from foreign countries pay 10*l.* per 120. The duty increases with the length, and also with the thickness, of the battens. The net revenue from battens in 1833 was 116,215*l.* The difference between battens and deals is this: battens are never, and deals are always, above seven inches wide. Battens are always at least six feet long, and batten-ends always under that length. The duty on battens and batten-ends is different: battens, 1*l.* British North American, 10*l.* foreign; batten-ends, 7*s.* 6*d.* American, 3*l.* foreign. (*Government Statistical Tables*, 1834.) The best battens are from Christiania; the worst, from America.

BATTERING-RAM. [See ARTILLERY.]

BATTERSEA, a parish in the county of Surrey, situated four miles south-west of St. Paul's Cathedral, and forming one of the suburbs of the metropolis. In Domesday Book it is called *Patricesy*, and as the same survey mentions that it belonged to the abbey of St. Peter, Westminster, this probably indicates the true etymology of the name. The parish comprehends an area of 3020 acres, pretty equally divided between arable land and pasture. Much of the former is occupied by market-gardeners, Battersea being specially noted for the quantity of vegetable produce which it raises for the London market. The manor of Battersea was given by the Conqueror to Westminster Abbey in exchange for Windsor; after the dissolution of monasteries the manor passed through various hands, and in the year 1627 it was granted by the king to Oliver St. John, Viscount Grandison, from whom it descended to the celebrated St. John, Viscount Bolingbroke, and in 1763 was purchased of the St. John family in trust for John Viscount Spencer, and is now the property of the present Earl Spencer. A church is mentioned in Domesday Book, but the existing parish church is a modern structure, opened in 1777. It is situated on the banks of the Thames, and is of brick, with a tower and small conical spire. It has neither aisles nor chancel. A new church has recently been erected by the commissioners for building churches. The living of Battersea is a vicarage in the diocese of Winchester, rated in the king's books at 13*l.* 15*s.* 2½*d.* The tithes which accrue from the gardens render the living one of the most valuable in the neighbourhood of London. Battersea lies too low on the Thames to be one of the most agreeable suburbs of London for residence; it nevertheless contains a large number of respectable houses and neat villas. Lord Bolingbroke was born and died in the family mansion at Battersea, of which Pope was a frequent inmate. The house was very large, having forty rooms on a floor; but it has long since been taken down and the site otherwise appropriated. The village possesses a free school, which was endowed by Sir Walter St. John, in 1700, for twenty boys; and both he and his lady afterwards left further sums for apprenticing some of the number. Battersea is connected with Chelsea by a wooden bridge across the Thames, erected in 1771. The population of this extensive parish was 5540 in 1831, of whom 3021 were females. (Lyson's *Environs of London.*)

BATTERY, in Law. [See ASSAULT.]

BATTERY. This name is given to any number of pieces of ordnance placed behind an *Epaulement*, or elevation of earth, either to destroy the works or dismount the artillery of an enemy.

It may be said that the antients made use of a species of ordnance in the operations of attack and defence; and the battering-rams, the balistæ, and the catapultæ, which, when placed on the natural ground, or in buildings of timber, or elevated on mounds of earth, served the besiegers to demolish the walls of fortresses, or to drive the defenders from them, may be considered as corresponding to the guns, mortars, &c., which constitute the armament of a modern battery.

Vitruvius states (*De Architecturâ*, lib. x.) that Cetras of Chalcedon was the first who covered the *ram* with a shed, in order to secure the men who worked it from the arrows, darts, and stones thrown by the enemy; and he adds, that the construction of the shed was subsequently improved by the engineers of Philip and Alexander. The *testudines* and *helépoles* were buildings of this nature, for the protection of the men and military engines, and in this respect they correspond to the *épaulemens* which cover the ordnance at present employed in the attack of a fortress. (See the description of the helépolis (ἑλέπολις) of Demetrius. Plutarch, *Life of Demetrius*, cap. 21.)

While the same species of artillery continued to be used in warfare, it is evident that no material change could take place in the nature of the edifices constructed to cover it; but from the epoch of the invention of gunpowder, the wooden sheds or towers were superseded by masses of earth, whose thickness was necessarily made greater than the depth to which a cannon-shot can penetrate into them. In modern times the designation of a battery varies with the purposes to be accomplished, the nature of the ordnance employed, and the manner in which the firing may be made.

A *breaching battery* is one which may be placed at between 50 and 1000 yards from any wall or rampart, in order to demolish it; and the effect is produced by firing directly, or, as it is called, *point blanc* at the object: such a battery generally has its front parallel to the face of the wall to be breached.

An *enfilading battery* is one whose epaulement is perpendicular to the produced line of the enemy's rampart; so that the shot from the guns may graze the interior side of that rampart or its parapet, in the direction of its length. When shot discharged from pieces of ordnance make successive rebounds along the ground, the firing is said to be *à ricochet* and the battery a ricochetting battery; and this mode of firing is employed when it is intended to dismount artillery by enfilading a rampart. The effect is produced by giving to the axis of the gun an elevation of between six and nine degrees above a line passing from its *chamber* through the crest of the enemy's parapet in front; and, according to the latest experiments, the distance at which a battery should be placed from the nearest extremity of the rampart to be enfiladed by ricochet firing is between 400 and 600 yards: at a greater distance than the latter much of the ammunition would be expended without effect.

A *gun battery* is one in which guns only are employed, for either of the purposes above mentioned, or to defend any ground, by a fire of round, or solid shot.

A *howitzer battery*, is one in which howitzers are employed. This species of ordnance throws shells, or hollow shot, generally at a small elevation of the axis to the horizon; and it serves to produce, by the bursting of the shells, a breach in a rampart of earth; or, when fired *à ricochet*, to destroy the pallisades or other obstacles which might impede the troops in assaulting an enemy's work. Howitzers are also used in conjunction with guns, to form breaches in ramparts of brick or stone.

A *mortar battery* is one in which shells are thrown from mortars at a great elevation of the axis of the piece; so that, by the momentum acquired in falling, they may crush the roofs, and by their explosion complete the destruction of magazines or other buildings. This is called a vertical fire. By employing large charges of powder, a very extensive range has been produced by mortars; for, at the siege of Cadiz, during the late war, the French are said to have sent shells to the distance of more than three miles from the battery.

When the battery is mounted on a natural or artificial eminence, in order to allow the guns to fire from above downward, or to make what is called a plunging fire against or into the works of the enemy, it constitutes a *cavalier battery*; and when the guns are elevated on a platform, or on tall carriages, so as to be enabled to fire over the superior surface of the parapet or epaulement, the battery is said to be *en barbette.* This kind of battery is usually executed at the most advanced points of a fortress, for the purpose of allowing considerable variation in the direction of the artillery towards the right or left; by which means the reconnoitring parties of the besiegers may be annoyed while at a distance and in motion.

In the formation of any of the field batteries above mentioned, while they are beyond the range of the enemy's musketry, they may be executed without cover for the working parties, like any simple breast-work, after the outline has been traced on the ground by the engineers; but, when the men employed in the work would be much exposed to annoyance from the enemy's fire, it becomes necessary that they should be protected by a mask of *gabions*. [See GABION.] These being planted on their bases along the exterior side of the intended trench in front of the battery, form a cover, even while empty, which a musket-ball cannot pierce. Within this line of gabions the excavation is commenced, and part of the earth obtained from the trench is thrown into and beyond the gabions, till the covering mass is thick enough, if necessary, to be proof against a cannon ball: the men thus work in comparative security to raise the epaulement with earth, which they do generally to the height of about seven feet from the ground, and to the thickness of eighteen or twenty feet, not including the breadths of the slopes given to the exterior and interior sides. The exterior slope is generally left with that inclination which earth, when thrown up, naturally assumes, that is at about 45° to the horizon; but the interior slope being necessarily more steep, in order to allow the guns to be brought close up to it, is retained by a *revêtement* or covering, either of *fascines* [see FASCINES] or bags of earth.

The *embrazures*, or openings in the epaulement, through which the guns are to fire, are, at the neck or interior extremity, about two feet wide, and at the exterior about half the thickness of the epaulement: each of their sides or cheeks has a small declination from a vertical plane, so that the breadth of the opening at top is rather greater than at the bottom, or on what is called the *sole* of the embrazure, in order that the flame from the muzzle of the gun may be less liable to damage those sides: for the same reason the latter are lined with fascines, or, which is preferred, with gabions, at the neck of the embrazure. The interval between two embrazures is called a *merlon*; and the part between the *sole* and the ground within the battery is called the *genouillère*.

The guns rest on platforms, generally of timber, either of a rectangular or dovetailed figure, about fourteen feet long and seven feet wide; each of these is constructed by embedding five *sleepers* in the ground, in the direction of its length, and covering them with planks, which are closely fitted to each other, and fastened down by screws.

Besides the epaulement in front of the battery, a wing is constructed of the same materials on each side, in order to protect the interior from any enfilading fire of the enemy. A magazine is always formed either within or near the rear of the battery, to contain the ammunition for its service; this is generally a rectangular pit sunk to about three feet below, with sides and a roof of timber rising about as much above, the natural ground: the roof is covered with earth of a thickness which may be capable of resisting the momentum of a shell, and the descent to the floor of the magazine is by an inclined plane towards the rear. *Traverses*, or elevations of earth, secured at the sides generally by gabions, are formed at intervals in the interior of the battery, to afford protection for the men against such shot or shells of the enemy as may fall there.

Howitzer and mortar batteries are executed nearly in the same manner as the others, but the former of these seldom, and the latter never, have embrazures; the level of their interior is also generally sunk three feet below that of the natural ground, consequently no trench is required on their exterior to furnish earth, which can be obtained in sufficient quantity from within.

BATTICALO'A, an island situated near the entrance of an inlet of the sea, on the east coast of Ceylon, 7° 44′ N. lat., 81° 52′ E. long. It contains a small fort and garrison, and is the head station of the assistant government agent of the district of Batticaloa. The island cannot be approached by ships of any size, as the entrance to the inlet, which extends north and south nearly thirty miles, is closed by a bar, over which the depth of water is only six feet. The country in the immediate neighbourhood of Batticaloa is flat and fertile; some scattered hills appear in the distance, among which two called Friar's Hood and Funnel Hill, serve as excellent landmarks to those who are sailing round the island of Ceylon. It was here that the Dutch admiral Spilbergen landed, in 1602, when a communication was first opened between the King of Candy and Holland. At that time this district was under the immediate rule of a petty prince, who seems to have owed a divided allegiance to the Portuguese and the Candian emperor.

Batticaloa is also the name of a district of Ceylon, now under the charge of an assistant government agent, comprising an area of 13,060 square miles, the population of which, according to the census of 1832, amounted to 29,424.

BATTICE, a commune and market-town in the province of Liége, situated three leagues N.N.W. of Verviers, and bounded on the north by the communes of Mortier, St. André, and Charneux; on the east by that of Thimister; on the south by those of Dison, Petit Rechain, Grand Rechain, and Xhendelesse; and on the west by Soumagne, Melin, and Bolland. The town has a weekly grain-market which is much frequented, and two fairs are held there on the 15th May and 15th November every year. The country is well watered by numerous small streams. The soil is generally a sandy clay, and in some parts is stony; it produces rye, barley, spelt-wheat, oats, beans, and trefoil. A considerable quantity of butter and cheese are made and sent away, partly to other districts and partly to foreign countries. Some coal-mines, which are opened in this district, and cloth-weaving, furnish employment for a considerable part of the inhabitants. A description of sand is found in one part of the commune, very useful in making cement for plasterer's work. There are three very old castles, those of Crèvecœur, Bosmel, and Xhéneumont; the two latter are now occupied as farm-houses: population 4280. (Meisser's *Dictionnaire Géographique de la Province de Liége*.)

BATTLE, or **BATTEL**, a parish and market-town in the hundred of the same name in the rape of Hastings, county of Sussex. It is fifty-two miles S.E. from London, in a pleasant country, where the land rises in wooded swells The name of the place was antiently Epiton, and acquired the present denomination in consequence of the great battle between the English and Normans, in which the former were defeated, and their king (Harold) killed, on the 14th October, 1066. The Conqueror commenced, in the following year, an abbey upon the site where the battle had raged most fiercely, the high altar of its church being upon the precise spot where, according to some authorities, Harold was killed, or where, as others say, his standard was taken. But as the whole neighbourhood does not afford any other spot equally eligible for such a structure, Mr. Gilpin is of opinion that accident did not determine the precise spot, though it might the general situation of the erection. When the abbey church was finished, the Conqueror made an offering of his sword and coronation robe at the high altar, in which was also deposited the famous roll or table of all the Normans of consequence who attended William to England. Copies of this catalogue have been preserved; but modern antiquarians in general concur in the opinion of Dugdale, that the list was often falsified and altered by the monks to gratify persons who wished to be considered of Norman extraction. The abbey was dedicated by the founder to St. Martin, and filled, in the first instance, with Benedictine monks from that of Marmontier in Normandy. All the land for a league around the house was given to it, besides various churches and manors in different counties, which were enlarged by royal and private donations in subsequent reigns. Its prerogatives and immunities were placed on the same footing with those of Christ Church, Canterbury; the monks and their tenants were exempt from episcopal and other ecclesiastical jurisdiction; they had the exclusive right of inquest in all murders committed within their lands, the property of all treasure discovered on their estates, the right of free warren, and the church was made a sanctuary in cases of homicide, besides other privileges. The abbot, who was mitred, and a peer in parliament, had also the royal power of pardoning any condemned thief whom he should pass or meet on going to execution. In the reign of Edward III. the abbot obtained the king's leave to fortify the abbey. The Conqueror's intention seems to have been that the foundation should maintain 140 monks, but provision does not appear to have been actually made for more than sixty. At the dissolution of the monastery, in the 26th of Henry VIII., its income was valued at 880*l.* 14*s.* 7½*d.*, according to Dugdale, or 987*l.* 0*s.* 10¼*d.*, according to Speed.

A pension of 66*l.* 13*s.* 4*d.* was settled upon the abbot, with smaller sums on sixteen other officers and monks. The site and demesnes of the abbey were given to a person named Gilmer, who pulled down a considerable portion of the buildings in order to dispose of the materials. He afterwards sold the estate to Sir Anthony Browne, who began to convert part of the abbey into a mansion, which was finished by his son, the first Lord Montague. This afterwards fell to decay; and when the property was sold to Sir Thomas Webster, the ancestor of Sir Godfrey Webster, the existing proprietor, the present dwelling was erected on one side of the quadrangle of which the old abbey appears to have consisted.

Battle Abbey stands on a gentle rise, with a fine sweep before it of meadows and woods, confined by wooded hills, which form a valley winding towards Hastings, and there meeting the sea. The ruins show the antient magnificence of the structure; their circuit is computed at about a mile, and Gilpin considers that the style proves that the greater part must have been rebuilt in the time of the later Henries, when our architecture began to assume a lighter and more embellished form. The remains occupy three sides of a large quadrangle, the fourth having probably been taken down to admit a view of the country when what is now the middle side was converted into a dwelling. The two wings are in ruins. The side of the quadrangle that faces the town contains the grand entrance, which is a large square building, embattled at the top with a handsome octagon tower at each corner. The front is adorned with a series of arches and neat pilasters; and this entrance is altogether a very rich and elegant specimen of Gothic architecture. This pile is locally called 'the Castle,' and until 1794, when the roof fell in and rendered it unfit for the purpose, it was used as a town-hall by the people of Battle. The side of the quadrangle opposite this entrance consists only of two long, low, parallel walls, which formerly supported a row of chambers, and terminated in two elegant turrets. The remaining side, which forms the existing mansion, has undergone the greatest dilapidations. Here stood the abbey church, though the ground-plan cannot now be traced; the only vestiges of it are nine elegant arches, which seem to have belonged to the inside of a cloister; they are now filled up, and appear on the outside of the house. Contiguous to the great church are the ruins of a hall, which appears to have been the refectory in ordinary use by the monks. There is another building of the same kind a little detached from the abbey, and which is of great beauty, although its dimensions, 166 feet by 35, are not in good proportion. It has twelve windows on one side and six on the other, and is strongly buttressed on the outside. This appears of older date than the remaining portions of the abbey: it is now used as a barn; its original purpose was probably to accommodate the numerous tenants to whom the monks gave entertainments at stated times. The floor of the hall is raised, and there is an ascent to it by a flight of steps. Underneath are crypts of freestone divided by elegant pillars and springing arches, which form a curious vaulted building, now converted into a stable.

The town of Battle owes its origin to the abbey. Under the encouragement of the monks, houses to the number of 150 were gradually erected in the vicinity; and to the town thus formed, a market, to be held on Sundays, was granted by Henry I. At the commencement of the seventeenth century Anthony Viscount Montague obtained an act of parliament for changing the market-day to Thursday, on which it is still held. The present town consists of one street, running along a valley from north-west to south-east. The church is dedicated to St. Mary, and is a very handsome edifice, consisting of a nave, chancel, two aisles, and a substantial tower. The windows of the north aisle are decorated with numerous figures, portraits, and devices in painted glass. The incumbent is styled 'Dean of Battle,' though the living is, in fact, a vicarage in the archdeaconry of Lewes and diocese of Chichester, charged in the king's book at 24*l.* 13*s.* 4*d.* The lord of the manor is patron. The number of houses in the parish was 515 in 1831, when the population amounted to 2999 persons, of whom 1538 were females. The only manufacture for which the place is remarkable is the excellent gunpowder, well known to sportsmen by the name of Battle powder. It is considered to be surpassed only by that of Dartford: there are several extensive mills in the neighbourhood for the manufacture of it. Besides the weekly market, there is one on the second Tuesday of every month for cattle, at which, as well as at the fairs, on Whit-Monday and 22nd November, considerable business is transacted. The town possesses a charity-school for forty boys. The Burrell MSS. in the British Museum state that the hundred of Battle 'is a franchise, the inhabitants whereof are exempt from attending assizes and sessions, or serving on juries, and the lord appoints a coroner thereof.' The petty sessions are holden at Battle.

(Camden's *Britannia;* Dugdale's *Monasticon;* Gilpin's *Observations on the Coasts of Hampshire, Sussex, and Kent;* Pennant's *Journey from London to the Isle of Wight.*)

BATTLE-AXE, a military weapon of offence used in different countries from the remotest times. Sir Samuel Meyrick says, as it was suggested by, so it immediately followed, the invention of the hatchet. The two Greek names for the battle-axe ἀξίνη (*axine*), and πέλεκυς (*pélekus*), occur in Homer in the same verse, *Il.* O. l. 711. What was the precise difference between the two weapons we are not told by antient writers, but it seems probable that the *axine* was similar to our hatchet, while the *pelekus*, which is usually translated in Latin by *bipennis*, had evidently two heads or edges; for Homer mentions another instrument of the same kind in the 23rd book of the *Iliad*, called Ἡμιπέλεκον (*hemipelekon*), or the half-axe. Suidas interprets Ἡμιπέλεκα (*hemipeleka*), by αἱ μονόστομοι ἀξίναι, one-edged axes. (See Kuster's note on Ἡμιπέλεκα.) The *pelekus*, or *bipennis*, was also called *securis Amazonica*, the Amazonian axe, from its having been supposed to have been used by those female warriors. The best representation of the antient form of this *bipennis* is probably to be found in Petit's *Dissertatio de Amazonibus*, 8vo. Amst. 1687, where it appears on the reverse of a coin of Thyatira, as well as upon the reverses of two coins of Marcus Aurelius. Numerous other coins of great antiquity bearing the *bipennis* are referred to in Rasche's *Lexicon Rei Nummariæ*, tom. i. col. 502, *et seq.*; *Supplem.* tom. i. p. 596.

Among the nations and tribes who joined the great expedition of Xerxes, we find battle-axes among the Sacæ (Herodot. vii. c. lxiv.), and the Egyptians (*ibid.* c. lxxxix.). Brennus, at the siege of the Roman capitol by the Gauls, was armed with a battle-axe. The Vindelici fought against Drusus with the battle-axe. (Horat. *Carm.* iv. 4.) Tacitus, speaking of a later period (*Hist.* ii. 42), describes Otho's forces as cutting through helmets and breastplates with their swords and axes (*gladiis et securibus*). In the Roman armies, however, we do not find the battle axe in ordinary use. It seems to have been considered as the weapon more peculiarly used by uncivilized nations. Ammianus Marcellinus (fol. Par. 1681, lib. xix. c. vi.), under the year 359, describes a body of Gauls as furnished with battle-axes and swords.

The introduction of the battle-axe into this country has been frequently attributed to the Danes; but proofs of an earlier use of it in our islands are deducible. Mr. Hayman Rooke, in a memoir printed in the *Archæologia* of the Society of Antiquaries, has engraved a fragment of a battle-axe found among some Druidical remains at Aspatria in Cumberland, in June, 1789 (*Archæol.* vol. x. p. 113); and in the same volume, pl. xl., are two representations of the old Galwegian bill or battle-axe, each two feet six inches long, found in a moss near Terreagles. Remains of others are stated to have been found among the barrows on the downs of Wiltshire, and in the north of Scotland. The Danes and Norwegians, however, probably made more use of this instrument than any other nations of their time.

At the battle of Stamford Bridge, between Harold of England and Harold Harfager of Norway, when the Norwegians gave way and the English pursued them, a total stop is stated to have been put to the pursuit for some hours by the desperate boldness of a single Norwegian, who defended the pass of the bridge with his battle-axe. He killed more than forty of the English, and was himself at last slain only by stratagem. (Hen. Huntingt. l. vii. 211.)

That the battle-axe was used in England in the Saxon times we have the authority of different MSS. of the ninth century, and the English are represented as using it, in the Bayeux tapestry. The pole-axe, with an edge on one side and a sharp point on the other, is believed to have come in with the Normans.

When King Stephen was taken prisoner by the Earl of Gloucester, we are told by Gervas of Canterbury that he had broken his battle-axe in pieces before he took to his sword, and was even then brought down by a stone. (Script. x. Twysd. col. 1354.)

During the middle period of English history we read but little of this weapon, though it appears to have been constantly used. The Welsh infantry at the battle of Agincourt, in 1415, found it particularly serviceable in despatching those whom the archers had wounded with their arrows. In Strutt's *Manners and Customs of the English*, vol. ii. pl. xliv., Henry V. is represented as setting Richard, Earl of Warwick, to keep Port Quartervyle, at the siege of Rouen, by the delivery of a battle-axe.

Toward the close of the sixteenth century, the battle-axe, as a weapon of war, seems to have fallen into gradual disuse: although the occasional placing of a pistol in its handle, in some specimens which remain, seems to bespeak a wish on the part of the warriors of that period that it should be retained with an improved use.

Grose, in his *Military Antiquities*, vol. ii. pl. xxviii. fig. 4, and pl. xxxiv. fig. 3, has engraved a Lochaber axe, and an antient battle-axe. Sir Samuel Meyrick, in his engraved illustrations of antient armour now at Goodrich Court in Herefordshire, pl. lxxxiii., has engraved numerous specimens of battle-axes and pole-axes from the time of Henry VI. Fig. 1 represents a German pole-axe of the time of Henry VI., furnished with a ring to which a thong might be fastened, in order to twist round the arm of the person wielding it. Fig. 2, a battle-axe of the time of Henry VIII., to which was once attached a match-lock pistol. The whole is of iron, and came from Ireland. Fig. 3, a Venetian pole-axe of the same period, the blade beautifully engraved, and having on it the lion of St. Mark. Fig. 4, another specimen. Fig. 5, a battle-axe of the close of the reign of Henry VIII. Fig. 6, a Jedburg axe, or Jeddart staff of the same period, found in a river in Scotland. Such weapons were implied by the single word 'staves,' which included all kinds of arms whose handles were long poles. Fig. 7, a Lochaber axe as old as the last described, if not of greater age. Fig. 8, a battle-axe of the commencement of the reign of Queen Elizabeth. Fig. 9, another of the middle of that period. Figs. 10, 11, two of the close of her reign. Fig. 12, one of the commencement of the reign of James I. Fig. 13, another of this period, furnished with a wheel-lock pistol. Fig. 14, a Polish pole-axe, having on the blade a crown, and the letter S. twisted round the number III., for Sigismund III.; its staff ornamented with a brass bead, and its form exactly like those of the Anglo-Saxons in the Bayeux tapestry. Fig. 15, a Dutch battle-axe, having on it the date 1685, the handle being ornamented with ivory.

In Sir Samuel Meyrick's engraved *Illustrations*, vol. ii. pl. 93, fig. 7, he has given the blade of a battle-axe of its full size of the time of Queen Elizabeth, made in Germany.

The battle-axe was used at a very early period in naval fights, chiefly to cut the ropes and rigging of vessels. (See Scheffer, *Mil. Nav.* ii. 7.)

BATTLE, WAGER OF. [See APPEAL.]

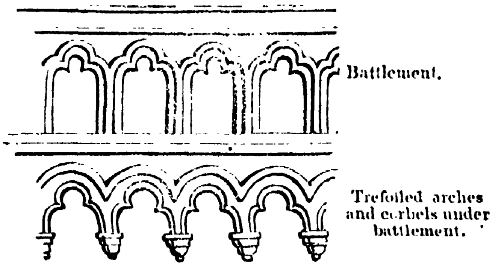
BATTLEMENT, a parapet wall, commonly employed in castellated and in ecclesiastical edifices of that kind which are distinguished by the general name of Gothic. [See GOTHIC ARCHITECTURE.] The battlement is of very remote antiquity, as remains of them still exist in Greece and Italy. (See Mazois' *Pompeii* and Stuart's *Athens*.) The modern battlement, however, is better known as belonging to buildings from the eleventh to the end of the sixteenth century; but it was not in general use in ecclesiastical edifices until the middle of the twelfth century.

The battlement is generally indented, with a coping sloping both ways from about the centre; the lower part between the coping and the cornice of the building is often pierced and decorated. Although by the word battlement is generally understood the whole indented parapet wall, the term may perhaps with more propriety be applied to express rather the higher part of the wall, in contradistinction to the indent, interval, or embrasure. It is possible that the term battlement may have derived its name from the facility afforded to soldiers of doing battle under the protection afforded by the higher part of the indented wall. Battlements offer in their proportions, and in the details of their mouldings and ornaments, a great variety of examples. Mr. Rickman has endeavoured to distinguish the different periods in which the pointed-arch style of Gothic architecture changed the form of its detail; and in this endeavour he has taken great pains to describe the characteristic features of the Norman, early English, decorated English, and perpendicular English styles of battlements.

As to Norman battlements, he says it is very difficult to ascertain what was their precise form. He considers them to have been only plain parapets; but remarks that there are instances in some castellated Norman buildings of a parapet with here and there a narrow interval cut in it, which appears original.

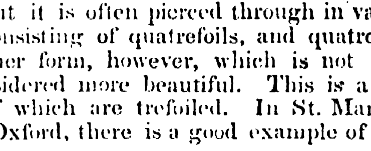
It is more probable, then, that the Norman battlement was a plain parapet, but without intervals; and, if decorated, the decoration probably consisted of the semicircular arch, the peculiar feature of the Norman style. In support of this opinion we may mention the upper part or rim of a Norman font, decorated with semicircular-headed pannels, in South Hayling Church, Hampshire. The Norman church of l'Abbaye aux Dames, at Caen in Normandy, has a parapet decorated with pointed-arched-headed pannels, which at the introduction of the pointed-arch style most probably supplanted the old semicircular-arched pannel, similar to that at Hayling Church.

Early English Battlements.—During nearly the whole period in which this style was in use, the parapet was seldom indented; and in many buildings it was plain, in others decorated. At Salisbury it is executed with a series of arches and pannels, and in Lincoln Cathedral with quatrefoils in sunk pannels. A battlement of equal intervals occurs in small ornamented works erected about the close of this period, when the early English style gave way to another more decorated, denominated by Mr. Rickman the decorated English style.

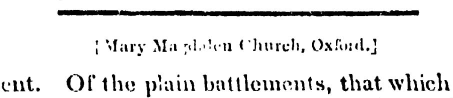


[Salisbury Cathedral.]

Decorated English Battlement.—During this period the parapet wall without indentations continued frequently to be used; but it is often pierced through in various forms, generally consisting of quatrefoils, and quatrefoils in circles. Another form, however, which is not so common, may be considered more beautiful. This is a waved line, the spaces of which are trefoiled. In St. Mary Magdalen Church, at Oxford, there is a good example of this kind of battlement. Of the plain battlements, that which was most in use in this period has the embrasures or intervals narrow, and is surmounted with a capping moulding placed in a horizontal position as at Waltham Cross; but there are some battlements of the same date with the capping running both vertically and horizontally, of which there is a fine specimen in the tower of Merton Chapel, Oxford. In some small works of this style a flower is occasionally used as a finish above the capping, moulding, or cornice, but it is by no means common. The nave of York Cathedral presents a fine example of the pierced battlement so prevalent during this period: it consists of arches or arched pannels



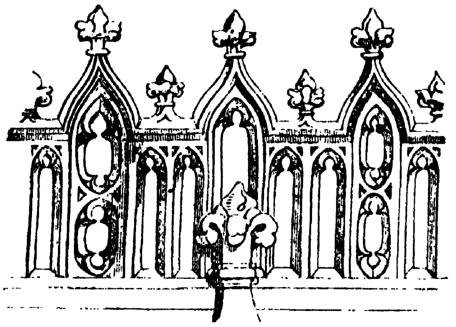
[Mary Magdalen Church, Oxford.]



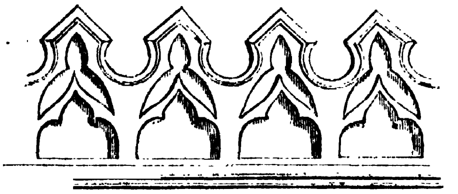
[Waltham Cross, as restored from the antient fragments, by W. B. Clarke.]

trefoiled or cinquefoiled, and the interval is a quatrefoil in a circle; the whole is covered with a moulding running both horizontally and vertically.

Perpendicular English Battlements.—In the battlements belonging to this period, parapets without indentures still continued to be used occasionally; the serpentine line with the trefoil was also still in use, but the line dividing the trefoil was more frequently made straight, and the divisions were consequently formed into triangular pannels. But in the early and best works the trefoils are not divided by straight lines. One of the finest examples of pannelled parapets is at the Beauchamp Chapel, at Warwick, consisting of quatrefoils in squares, with shields and flowers. There are many varieties of pierced battlements belonging to this period. Those erected in the early part of it have commonly quatrefoils, either in the lower compartments or above the pannels of the lower compartments, forming part of the higher pannels. Two heights of pannels are also frequently employed in battlements of this period. At Loughborough there is an example of a fine battlement, consisting of rich pierced quatrefoils in two heights. Such battlements have generally a moulded cornice running round the battlement and the embrasure. A few edifices of a later period have pierced battlements ornamented with pointed compartments, as in the tower of Lincoln Cathedral, the Tomb-house at Windsor, the Lady Chapel at Peterborough, and the great battlement at King's College Chapel, Cambridge. Sometimes on the exterior of a building, and often within, the Tudor or three-leaved flower, forming a point at the top, is used on the battlement, as at the screens in the choir of Exeter Cathedral; and there are a few instances of the upper part of a battlement analogous in form to it in small works erected long before this date,—as at Northampton Cross. But Waltham Cross, erected at the same time, is without this finish. Some battlements of this period, especially in very rich designs, have, in lieu of the Tudor flower, a finial on the top of pierced quatrefoils, as at Woolpit and Blithborough Churches in Suffolk.

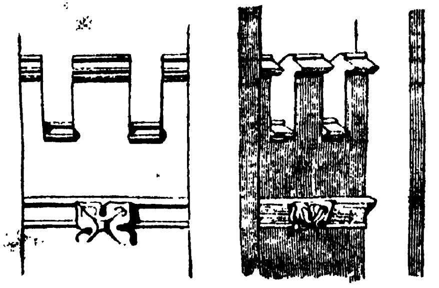


[From the tower of Lincoln Cathedral, from a sketch by G. Moore, Arch.]

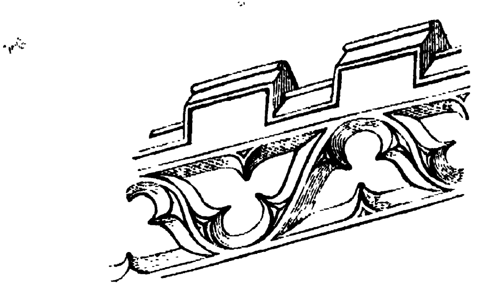


[Northampton Cross, from an original sketch by G. Moore, Arch.]

Of plain battlements in the perpendicular style there are many varieties. Some are formed with nearly equal intervals, and with a plain coping placed both horizontally and vertically. Castellated battlements have the embrasures between the battlements nearly equal to the width of the battlements themselves: sometimes they have wide battlements and narrow embrasures, with the coping moulding placed horizontally and the sides cut plain. Another battlement consists of a moulding running round the battlement and the embrasure, while a capping is set upon the horizontal part of the embrasure and battlement, as at York Minster. The most common battlement towards the close of this period has a broad cornice consisting of several mouldings running both vertically and horizontally, the embrasures being very often much narrowed and the battlement enlarged.



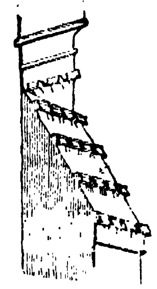
[Turret of King's College Chapel, Cambridge.]



[York Minster.]

As the battlements of the perpendicular style were liable to frequent alterations, they cannot alone be depended on to determine the age of a building. (Rickman's *Attempt to Discriminate the Styles of English Architecture.*) Between the periods which are distinguished by the appellations of early, decorated, and perpendicular English, there are some minute shades of difference in the detail and proportion of battlements. This will be apparent on an examination of the antient edifices of Great Britain.

The battlement, which was originally designed for the protection of the besieged, became afterwards merely an ornament to an edifice. A most remarkable example of the excessive use of it as a decoration is shown in the annexed cut, representing the top of a buttress at Loddon Church, Norfolk.



[Buttress, with battlements, at Loddon Church, Norfolk.]

(For representations of battlements, see Britton's *Cathedrals*; and *Views of Collegiate and Parochial Churches in Great Britain*, by J. P. Neale.)

BATURIN, a town founded by Stephen Bathory when king of Poland, at present situated in the Russian province of Tschernigoff, or Czerniechoff, and in the circle of Konotoss. It occupies a picturesque position on a hill, and is skirted on one side by the Seyma, in the midst of a beautiful expanse of country which is remarkable for its fertility. The town is surrounded by a wall of earth, and contains a handsome convent, eight churches, and about 5000 inhabitants. The environs are well cultivated. The soil and climate are favourable to the partial growth of the filbert, vine, and mulberry; and the trade of the district, which is promoted by fairs held in the place, depends chiefly on agricultural produce. Baturin was for some time a favourite residence of the Atamans of the Cossacks, among whom none has acquired greater notoriety than the traitor Mazeppa, who sold himself to the Swedes in 1708. The Russians, to whom the town has belonged since the year 1604, afterwards burnt it in revenge for the treachery of Mazeppa. It has since been rebuilt, and was with its dependencies, including at that time nearly 9300 male inhabitants, granted by the Empress Elizabeth to Prince Razumoffsky, whose descendants are its present proprietors. The palace of the Atamans and its once handsome grounds are now going to decay. Baturin lies, according to Hassel, in 51° 45′ N. lat., and 50° 40′ E. long.

BAUD, a town in the department of Morbihan on the road from Pontivy to Hennebon and Lorient, 15 miles from Pontivy, and 269 miles W. by S. of Paris; 47° 53′ N. lat., 3° 1′ W. long. It is near the river Evel, which flows into the Blavet a few miles below the town. The population of the commune amounted in 1832 to 5120, but what proportion belongs to the town itself we are not aware.

In the environs of this town is found the staurolite, a mineral composed chiefly of silex and alumine, and whose crystals frequently penetrate each other at right angles or obliquely, so as to form a cross. It is found also in the adjacent department of Finisterre, and in one or two places in the south of France.

BAUDOUR, a town and commune in the province of Hainault, situated two leagues west of Mons. It is bounded on the north by the commune of Villerot, on the south-west by Hautrage, on the south by Boussu and St. Ghislain, on the south-east by Quaregnon and Jemappes, on the east by Ghlin, and on the north-west by Erbisœul. The surface of this commune is much varied. Near the town, on the west, is a hill covered with wood; to the south are large meadows, and on the north considerable sand-hills. The central part contains a coal-mine, but it is not worked. Potter's clay is found in considerable quantities, and gives employment to many of the population in making earthenware. In the wood of Baudour, already mentioned, is a considerable deposit of pulverulent phosphate of iron. The soil generally is of very moderate fertility. Wheat can be grown only in a few spots. The rotation of crops on such lands is wheat, barley, rye, trefoil, oats, and then fallow. Some hops are likewise grown, and different kinds of common fruits. There are two salt-refineries in the commune. Population of the commune, 2577. (Meisser's *Dictionnaire Géographique de Hainaut*, 1833.)

BAUGE′, a town in France in the department of Maine et Loire, on a cross-road between La Flèche and Saumur, 10 miles S. of La Flèche and 158 miles S. W. of Paris; 47° 33′ N. lat., 0° 7′ W. long. Baugé is on the right bank of the little river Couanon or Couesnon. Strictly speaking, it consists of two towns, about half a mile or a mile from each other. One of these is named Baugé le Vieil (Old Baugé), or Baugé le Château, while the other, which is the principal, has for its distinctive name Baugé la Ville. There are some manufactures of cloth, serge, drugget, sail-cloth, cotton yarn, &c. The chief trade of the place is in its manufactures, and in timber and cattle. There is a fine bridge of freestone over the Couesnon.

The English, under the Duke of Clarence, brother of Henry V., were defeated before Baugé le Vieil in the year 1421. The French were commanded in this encounter by the Maréchal de la Fayette. There is an hospital in this place; and also a castle, built by Foulques, or Fulk Nera, in the eleventh century.

Baugé is the capital of an arrondissement containing 668 square miles, or 427,520 acres, with a population in 1832 of 81,690. The population of Baugé, without any distinction of the two towns, is given in the same return at 3553 for the commune, or 3433 for the town itself. We suppose this refers only to Baugé la Ville; for in the *Dictionnaire Universel de la France*, 1804, the population of this place is given at 2904, and that of Baugé le Vieil at 1874: together, 4778.

In the arrondissement a considerable quantity of paper is made.

BAUHIN, JOHN, a distinguished botanist, was born at Basle according to Sprengel, or at Lyons according to others, in 1541. His father, who was a physician of great reputation, having destined him also for the medical profession, placed him, towards the completion of his studies, with Fuchsius, a botanist of considerable eminence in his day, and afterwards with the celebrated Conrad Gesner, whom he accompanied in his various excursions through Switzerland. He afterwards visited several other parts of Europe for the purpose of becoming acquainted with their vegetable productions, and with a view to collecting materials for his *Historia Plantarum*, afterwards published. In 1566 he fixed himself at Basle, where he was elected professor of rhetoric. A few years subsequently he was appointed principal physician of the Duke of Wirtemberg, in which situation he died at Montbelliard in 1613.

During his life he published little of importance, but he occupied himself with great industry in reducing the scattered knowledge of the botanists of his day into a single and connected history of the whole vegetable kingdom, which he arranged upon the plan sketched out by Lovel. This work was not printed till nearly forty years after his death, in 3 vols. folio, published at Yverdun in 1650-1, under the care of Dr. Chatré, his brother-in-law. This work, although by no means free from errors, was a most important performance for the time when it appeared, and may be considered the first step towards reducing systematical botany into order. It is now consulted only by those who are curious in the history of botanical discovery, but it will always remain the key to the botanical works which preceded it. In the words of Sprengel, the author deserves great praise for his diligence in collecting and describing plants, disentangling their synonyms, and ascertaining with precision their native places.

BAUHIN, GASPARD, the brother of John, was born at Basle in 1560. After receiving the usual college education, he visited several parts of Europe, with a view to examine their vegetable productions, and to render himself conversant with the state of medical science. Upon his return to Basle, he appears to have gained great reputation as a learned man and a skilful naturalist, and he had honours showered upon him with a profusion which marks strongly the force of public opinion in his favour. We find him described as holding the offices of professor of Greek, of anatomy and botany, and of the practice of medicine, dean of the faculty of medicine, chief physician to the town, and rector of the university. He died in 1624.

His works consist of several medical treatises, especially of a set of anatomical plates, partly original and partly copied from Vesalius and Eustachius; but his reputation chiefly depends upon his botanical publications. He appears to have been better furnished with materials than his brother John, and to have had more command of good artists for embellishing his works, which consist partly of descriptions and figures of new plants,—in his *Phytopinax*, published at Basle in 4to., 1596, and in the *Prodromus Theatri Botanici*, which appeared at Frankfort in 1620; and partly of collections of the synonyms of the botanical writers who had preceded him. The latter appeared in his *Pinax Theatri Botanici* in 1623, of which a second edition was published in 1671, and which is a complete key to the knowledge of the day. He also commenced a very important work, in which all the plants at that time known were to be reduced to the natural orders; but of this, called *Theatrum Botanicum*, one volume only was published, containing the grasses, sedges, and liliaceous plants. He also published a catalogue of the plants growing wild about Basle, a work which both Haller and Sprengel describe as being remarkably complete. Although the writings of the two Bauhins are now little consulted, except by those who occupy themselves with the not very important subject of the history of European species, they must be considered as men who, by their zeal, learning, and good sense, aided by unwearied industry, have largely contributed to the advance of botany, and have been surpassed by no one, unless by Linnæus, in their own department of the science. They do not appear, however, to have been men of much originality of mind, or to have in any way extended the sphere of botanical science: they can only be considered useful pioneers, but as such they are entitled to the gratitude of posterity; for, as De Candolle has well remarked, if they did not succeed in discovering any sufficiently methodical manner of classifying their knowledge, they at least rendered the want of some good classification more apparent than it had ever been before.

BAUHI′NIA, a genus of plants belonging to the natural order *Leguminosæ*. Linnæus applied the name very happily to commemorate the merits of the two Bauhins, for the genus is remarkable for its leaves being generally divided into two twin lobes.

The species are usually twining plants, found in the woods of hot countries, and often stretching from tree to tree like living cables, forming with other plants an almost insurmountable obstacle to the traveller who would penetrate the recesses of a tropical forest. Some of them, however, are small trees, as for example *B. porruta*, which is called in Jamaica mountain ebony, because its wood is sheathed with black. Their flowers are often very beautiful; for which reason they have long been cultivated in the hot-houses of Europe, but they are too impatient of the wretched treatment they receive in the toys which we call stoves to flourish and produce their noble blossoms. So long as plants are cramped in earthen pots, and are treated like the feet of Chinese ladies, we must not hope to see in Europe those

noble flowers which are described by the travellers who have visited the forests of America and India.

BAUMANSHÖHLE is a remarkable cavern in northern Germany, situated in the south-eastern range of the Harz, not far from the village of Rübeland, less than two miles from Elbingerode, a town of the kingdom of Hanover, and nearly six from Blankenburg, a town of the dukedom of Brunswick. This cavern, which is considered one of the most remarkable natural phenomena of the Harz, is in a calcareous rock, and consists of six distinct large chambers, besides a smaller one. These six caverns taken together measure in length nearly 800 feet, and their entrance is 136 feet above the bed of the Bode, a small river which runs through a narrow valley at the foot of the calcareous rocks. The first cavern rises to upwards of 33 feet, and is the largest and most striking. The water penetrating through the rocks which form the roofs of the caverns, brings down with it calcareous matter, which hardens and forms stalactites. These stalactites are of great beauty in the third cavern, and among them is the sounding column, which emits a loud sound when beaten. This cavern was discovered in 1672, by a miner, called Baumann, who entered it in hope of finding metallic ores.

BAUME, or **BEAUME**, the name of two towns in France, and of several smaller places. The towns were distinguished as Baume les Dames, and Baume les Messieurs, or Baume les Moines, from celebrated religious establishments which existed there: that in the former place was for females, and that in the latter for men.

Beaume-les-Dames is situated on the right or N.W. bank of the river Doubs, and in the department to which that river gives name. It is 255 miles E.S.E. of Paris, through Besançon, from which it is distant 18 miles E.N.E. 47° 22′ N. lat., 6° 21′ E. long.

The religious establishment to which this town owes its designation was of the order of St. Benedict, and of great antiquity. According to some it was formed by two brothers, St. Romain, abbot of Condat, and St. Lupicin, abbot of Leucone, (both in Franche Comté, with part of which the department of Doubs coincides,) about the middle of the fifth century: and these appointed their own sister as abbess. Piganiol de la Force (*Nouvelle Description de la France*, Paris, 1722) says its origin is uncertain, and that all that is known is that it was considerable in the time of Charlemagne, and of his son Louis le Débonnaire. The nuns were all of noble birth, and strict examination into this point was instituted when any desired to enter. The abbey however was far from rich. There appears to have been also in this town a convent of Capuchins

This little place has been much injured by the passage of troops in time of war; and, though it is the capital of an arrondissement, had not in 1832 a greater population than 2209 for the town, or 2467 for the whole commune. It is however an agreeable place, surrounded by meadows and by vineyards, the produce of which is well esteemed. The pillars of the high altar of the church attached to the Benedictine abbey mentioned above now adorn the Pantheon, or church of St. Geneviève, at Paris.

Baume-les-Dames contains one or two factories of cotton goods, considerable iron works, with a manufactory of wire and pins, large pottery and glass works, and a paper-mill. There are a library, a *collège* or high school, and an agricultural society. In the environs of the town are quarries of marble, gypsum, and slate; and mines of iron and coal. Baume-les-Dames is also called Baume-les-Nones, and Baume-sur-le-Doubs. The arrondissement of Baume comprehends 633 square miles, or 405,120 acres, and it had in 1832 a population of 64,884.

Baume-les-Moines is a small place, about four or five miles north-east of Lons-le-Saunier, capital of the department of Jura. The Benedictine convent from which it derived its name was originally a mere cell, when it was raised to the rank of an abbey by Count Bernon, abbot of Giny, early in the tenth century. Others carry the foundation of the abbey higher, and ascribe to Bernon a great reformation in the establishment. Pope Eugenius III. reduced the establishment to a simple priory, dependent on the abbey of Clugni, in 1147, but the title of abbey was restored some time after. Proof of nobility was necessary, in order to be received into this establishment as a monk.

The population of Baume-les-Moines, as given in the *Dictionnaire Universel de la France*, Paris, 1804, our latest authority, was 855.

BAUMGARTEN, ALEXANDER GOTTLIEB, was born in 1714 at Berlin, where his father was preacher to the court of Prussia. He studied at Halle, and became a warm admirer of Wolf's philosophy, though it was at that time considered heretical, and Wolf himself had in consequence been obliged to leave Halle. Baumgarten applied himself to the study of logic and of belles lettres, on which he afterwards gave lectures at the Orphan institution of Halle. Having examined what had been taught till then under the name of belles lettres, he endeavoured to reduce that branch of study to fixed principles. He invented the word *æsthetic*, which he applied to the theory of taste, or the science of the beautiful. Previous writers who had written on this subject had mostly limited their investigations to the beautiful in works of art; Baumgarten extended his researches to the qualities that constitute the beautiful in general, whether in natural or artificial objects, and to our faculty of perceiving the same. He divided the science of æsthetic into theoretical and practical: he developed his ideas first in his treatise, *Disputatio de nonnullis ad Poema pertinentibus*, Halle, 1735, and afterwards in his *Æsthetica*, Frankfurt on the Oder, 1750. Æsthetic has since become a distinct science, and is taught as such in the German universities. The other works of Baumgarten are *Metaphysica; Æthica Philosophica; Initia Philosophiæ Practicæ.* 'He examined chiefly the general rights of man, without reference to civil and political law, or to the law of nations, and, like Wolf, he confounded the object of natural law with that of morality.' Such is Buhle's judgment in his *History of Modern Philosophy*, iv. ch. 8.

In his metaphysics, Baumgarten maintained Wolf's principle of the 'sufficient reason,' and also that of the 'harmonia præstabilita' of Leibnitz, though somewhat modified in his definition of it. In 1740 Baumgarten was appointed professor of philosophy at Frankfurt on the Oder. His constant application undermined his health, and after lingering in a weak state for several years he died in 1762. He was a profound thinker, remarkably methodical in the arrangement of his thoughts, and precise in his exposition of them. His elder brother, James Sigismund, studied also at Halle and became professor of theology in that university. He wrote *Instructions on Moral Theology*, 8vo. 1738; *Abridgment of Ecclesiastical History*, 3 vols. 8vo. 1745; *Primæ Lineæ Breviarii Antiquitatum Christianarum*, 1747, and other works on ecclesiastical studies. He introduced important ameliorations into the study of theology at Halle. He died in 1757.

Another Baumgarten, Martin of Breitenbach, patrician of Nuremberg, no relation to the preceding, travelled in the east in the beginning of the sixteenth century and left an account of his journey, which was published after his death under the title of *Peregrinatio in Ægyptum, Arabiam, Palæstinam, et Syriam, facta annis* 1507 *et* 1508, *in lucem edita a Cristophoro Donaver*, 4to. Nuremberg, 1594.

BAUTZEN, or **BUDISSIN** (in the Wend language **BUDISHYN**), a well-built town near the eastern borders of the kingdom of Saxony, situated on the Spree: it is the capital of the circle of Upper Lusatia. Bautzen is known to have existed before the times of the celebrated Wittikind, and to have been defended by a strong castle, now in ruins. It is the seat of a provincial government, a consistory, and other public establishments; and the residence of a titular Roman Catholic bishop. Among other edifices of note, it contains a royal palace called the Orlenburg, now used as public offices (which was burned down in 1410, and rebuilt by

Mathias, King of Hungary); a Roman Catholic chapter-house; a spacious town-hall and public library; a house of assembly for the states; a flourishing and richly-endowed gymnasium; a seminary for educating teachers, with a primary school attached to it; a large cathedral church, founded in 1213, and used both by the Catholics and Lutherans in common, for which purpose it is divided by a screen of trellis-work; a Protestant church for the Wend congregation; three other churches; an orphan asylum; five hospitals; a mechanics' school, &c. There are manufactures of woollens, cotton, linen, stockings, yarn, gunpowder, paper, copper and iron-ware, beer and spirits, &c., in and about Bautzen; and it carries on considerable internal trade. It was the birth-place of Meissner the poet, who died in 1805. In the neighbourhood of Bautzen is Klein Welke, a Moravian colony with seminaries for boys and girls; and also the battle-fields of Hochkirch, and Kittlitz or Wurschen, the one fought in 1746, and the other, which was attended by the conflagration of thirty villages, on the 20th and 21st of May, 1813, between Napoleon and the allied Russians and Prussians. The town contains about 1400 houses and 7200 inhabitants, but with its suburbs nearly 13,000. It is in 51° 10′ N. lat., 14° 30′ E. long.: about 30 miles E.N.E. of Dresden.

BAVARIA (THE KINGDOM OF) derives its origin from one of the most ancient duchies in modern Europe; the name appears to come from the Boii or Boioarii, its early inhabitants, and the appellation is retained in the modern German name of Baiern. It is composed of the greater part of the former circles of Bavaria and Franconia, of certain districts of Swabia, the principalities of Ansbach and Baireuth, the bishoprics of Bamberg, Würzburg, Augsburg, Eichstädt, and Freisingen, and some parts of those of Mainz, Fulda, and Speyer (Spires). Its extent is at present more than one-half greater than in the year 1777, when the elector Charles Theodore inherited it, and added to it his patrimony in the Palatinate, comprising 4240 square miles. The electorate itself did not previously exceed 16,674 square miles, but this accession, and the subsequent acquisition of the Deux Ponts territory in 1799, increased it to 21,550 square miles.* Above seven-eighths of the territories which now compose it lie in the south of Germany, east of the Rhine, and form a compact state, commonly designated the *Territory of the Danube and Main*, which extends from 47° 19′ to 50° 41′ N. lat., and from 8° 51′ to 13° 44′ E. long.; its circuit, taken in straight lines, is estimated at nearly 1130 miles, but followed out in all its curvatures, at upwards of 1530. This portion of the Bavarian dominions, in which seven out of the eight provinces are comprised, is bounded on the south by the Tyrol and Vorarlberg, and at its south eastern extremity by the Austrian circle of the Salzach, in the province of the Upper Ens; in the east, part of the same province and of Bohemia border on it; its north-eastern frontier is skirted by the kingdom of Saxony, and its northern and north-western, by the principalities of Reuss and the states of ducal Saxony; and in the west, it skirts the dominions of Electoral Hesse, Hesse-Darmstadt, and Baden, until its borders reach the Tauber, at Mergentheim, whence the whole boundary to its south-western point on Lake Constanz is formed by the kingdom of Würtemberg. The other portion of the Bavarian dominions, the *Territory of the Rhine*, which is situated on the west bank of that river, and is completely disjoined from the preceding, by the interposition of the Baden and Hesse-Darmstadt possessions, extends from 48° 57′ to 49° 50′ N. lat. and from 7° 6′ to 8° 31′ E. long. The French departments of the Lower Rhine and Moselle bound it on the south, and the Rhine separates it from the grand duchy of Baden on the east; the Rhenish dominions of Hesse-Darmstadt are its north-eastern neighbour; the Prussian province of the Lower Rhine borders it on the north and south-west; and in the north-west and west it adjoins the domain of Meissenheim, belonging to Hesse-Homburg, and the principality of Lichtenberg.

Area and Subdivisions.—In consequence of the want of official details, considerable difficulty has hitherto attended every attempt to estimate the superficial extent of the Bavarian territory; some have reduced it to 28,000 square miles, while others have exaggerated it to 37,000; and one writer (Jacobi) to nearly 38,000. The documents, however, which have been lately brought before the Bavarian legislature enable us to submit the following as a correct statement of the total area of the kingdom of Bavaria. We have availed ourselves of this opportunity to add some other details for the purpose of rendering the statement still more comprehensive.

	Provinces or Circles.	Area.Sq. Miles.	Towns.	Market Towns.	Villages and Hamlets.	Population.		
						1817.	1828.	1833.
Territory of the Danube and Main.	The Isar, containing 31 districts (Land-gerichte) capital München (Munich)	5908	16	41	6550	489,452	581,923	595,363
	Lower Danube, 23 districts, capital Passau	2964	12	42	4511	488,442	539,039	552,028
	Regen, 27 districts, capital Regensburg (Ratisbon)	3495	27	60	2688	362,021	407,541	432,068
	Upper Danube, 46 districts, capital Augsburg	3914	23	72	2730	487,840	505,220	516,435
	Retzat, 42 districts, capital Nürnberg or Nuremberg	3112	41	65	2764	361,675	419,949	432,172
	Upper Main, 44 districts, capital Baireuth	3198	34	70	2370	460,328	523,789	547,003
	Lower Main, 51 districts, capital Würzburg	3489	43	31	1136	485,312	542,475	568,337
		26080						
	Province of the Rhine, 12 circles (Land-commissariat) each having from 2 to 4 cantons, capital Speyer (Spires)	2355	12	29	713	429,687	517,081	543,984
	Total	28,435	208	410	23,462	3,564,757	4,037,017	4,187,390

This area of 28,435 square miles is thus distributed;

Arable land	8,171,520 acres
Meadow do.	2,325,120
Vineyards, gardens, dwellings, out-buildings, &c.	309,120
Woods and forests	5,376,000
Waters, rivers, and lakes	420,080
Grazing and other land	1,596,560
	18,198,400

Bavaria is the thirteenth in the list of European states with regard to extent and amount of population, and ranks next to France, but immediately above Austria, with regard to density of population: as appears by Von Zedlitz's comparative tables.

Mountains.—The highlands of Bavaria are offsets from two great masses, the Alps and Sudete-Hercynian chain. To the former belongs that portion of the Noric Alps which stretches along the south-east of the circle of the Isar, and throws out its arms into that province; the Arlberg mountains, which enter the circle of the Upper Danube from the Tyrol and subside in this province; the Allgau-Alps, which commence near Kempten in the south of the same province, and extending north-eastward, terminate near Mindelheim. The highlands on the north side of the Danube, beginning at the northern part of the kingdom, contain the Spessart mountains, a finely wooded chain, separated from the Odenwald by the Main. They cover an area of 147 square miles, and traverse the circle of the Lower Main from north to south; their highest summits, such as the Engelsberg and Geiersberg, do not exceed 2000 feet in elevation. The Steigerwald, a forest range of inferior altitude, extends south of the Main, along the borders of the circles of the Lower and Upper Main and the Retzat, and affords a picturesque alternation of woods and fruitful valleys. The Rhongebirge, a bleak and desolate chain of mountains, with flattened summits covered half the year with snow, lie in the circle of the Lower Main, to the north of the river Main. They are attached on the east to the Fichtelgebirge, and on the west border on the Spessart; they attain their highest elevation in the Kreuzberg, which is 4162 feet above the level of the sea. The Fichtelgebirge, which is connected with the Bohemian forest chain, lies in the north-eastern circle of the Upper Main: the chief component parts of this mass are granite, gneiss, quartz, and clayslate; the highest summits are the Ochsenkopf, or Ox's Head (5280 feet) and some points of the Schneekopf, or Snow-peak, (3502 feet). Of the Thüringerwald, or forest of Thuringen, an inconsiderable portion lies within the circle of the Upper Main, where it goes by the name of the forest of Franconia (Frankenwald). On the west side of the Rhine, a branch of the Jura, the 'Vosgesus Mons,' which loses the name of the 'Vosges' on entering Rhenish Bavaria, where it is Germanized into the Wasgau, stretches in a north-easterly line deep into the centre of that province, and terminates in the canton of Kirchheim, in which is situated its loftiest summit, the Königsstuhl, one of the group of the Donnersberg (Mountain of Thunder), 2142 feet high. The composition of this chain is chiefly old red sandstone, though in some parts, particularly on the Donnersberg, which is crowned with a plateau above 100 acres in area, it contains hornblende and porphyry.

In these masses of Bavarian highlands the most elevated points, not before indicated, are, the Zugspitz of the Noric Alps, in the circle of the Isar, 9659 feet, and the Wetterschroffen, 9387; the Hochvogel of the Allgau range, in the circle of the Upper Danube, 8476: and the Teufelg'süss, in the same circle, 9283 feet. The only Bavarian heights which rise into the region of perpetual snow belong to the Noric Alps. The Bavarian mountains are generally raw and inhospitable, but well wooded. The Sudetsh branch of the great Hercynian range comprehends the Bohemian forest mountains (Böhmer-Wald Gebirge) which run along the eastern confines of Bavaria to the extreme eastern point where Hohenstein, about twenty-three miles north of the Danube, is situated, and, separating the kingdom from the Austrian dominions east of them, throw out several arms into the circles of the Lower Danube and Regen. Their highest summits on the Bavarian side are the Arber, 4824 feet, the Rachel, 4720, and the Dreisesselberg, 4054

Bavaria is, on the whole, a mountainous country; not only is it walled in by lofty mountains on the north and south, but its interior is intersected in various directions by elevated ranges. It contains, however, many wide and fertile valleys, and numerous extensive plains, the face of which is not unfrequently disfigured by swamps and morasses, here called 'Moose' and 'Filze,' from their surface being covered with a thick jungle of lichens (*lichen-muscus*) and reeds. Of these moors the largest are the Donaumoos, eighty miles in area, between Schrobenhausen and Ingolstadt: the Erdingermoos, in the circle of the Isar, upwards of 100 miles in area: the Isarmoos, between Laroek and the banks of the Danube, thirty-five miles in length and about three in breadth; the Eschenlohermoos, which stretches from the banks of the Laisach to Mornau; and the Rosenheimermoos on the Inn. These moors, part of which have latterly been drained, have hitherto been entirely unprofitable. The greatest extent of plain stretches full fifty miles in a south-eastern direction along the Danube from Ratisbon to Osterhofen; next to this in extent are the Königswiese (Royal Meadow), or Bockinger Heath, spreading from Bocking to Schärding; the Riefs, in the heart of which lies Nördlingen: the flats of the Regnitz which encircle Nuremberg; and that portion of the valley of the Rhine, on its west bank, which spreads into a dead plain round Landau, in Rhenish Bavaria. The most romantic parts of Bavaria are the regions on the south-eastern borders, where Alpine heights, mountain-torrents, lakes, and glaciers, combine to give them the characteristics of the Swiss or Tyrolese landscape.

Rivers, Lakes, &c.—The Rhine forms the eastern boundary of the Rhenish subdivision of Bavaria, from a point north-east of Lauterburg to a point a little south of Worms; the principal streams which fall into it on the Bavarian side are the Lauter, below Lauterburg; the Klingbach, south of Sondernheim; the Queich, close to Germersheim; the Speier, near the town of Speier or Spires; the Rehbach, &c. The breadth of the Rhine above Lauterburg is 1400 feet; its fall in this part of its course is estimated at four and a half feet in every three miles and a quarter, and it flows at the rate of about 395 feet per minute.

The Danube enters the south west of Bavaria from the Würtemberg dominions about two miles south of Ulm, and in its north-easterly and navigable course through the heart of the kingdom as far as Regensburg (Ratisbon) flows past Günzburg, Hochstädt, Donauwörth, Neuburg, and Ingolstadt, between which last town and Ratisbon it has a fall of 110 feet. In its course (which is about E.S.E.) from Ratisbon to Passau it has on its right bank Straubing and Vilshofen, and between Ratisbon and Nieder-Altaich, a spot five miles below Deckendorf, not far from Passau, in the circle of the Lower Danube, a fall of 150 feet. The course of this tortuous and impetuous river from Ulm to Passau is stated by St. Behlen to be fifty-seven and a half German miles, or about 270 English: the principal streams which are tributary to it along this line are, on its right bank, the Iller (after the latter has received the Bleibach), the Leiba, Mündel, Zusam, and Lech, the Isar below Deggendorf (after it has been joined by the Loisach, Amper, and Würm), and the Inn, near Passau (after it has been increased by the influx of the Alz, Salzach, &c.). On its left bank the chief rivers which fall into the Danube are the Wörnitz near Donauwörth, the Altmühl near Kehlheim, which rises not far from Hornau in the Retzat circle, the Rohrbach near Bubenheim, the Sulz near Beilingries, the Naab, which flows down from the Böhmerwald, is increased by the waters of the Heidnab from the region of the Fichtelgebirge, and joins the Danube above Ratisbon: and lastly the Regen, which also comes from the Böhmerwald, and uniting with the black, white, and lesser Regen, traverses the circle to which it gives its name, and discharges itself into the Danube near Stadh-am-Hof, opposite Ratisbon. During its course through the Bavarian territory the Danube receives no less than thirty-eight rivers.

The Main originates in two streams, the red and white Main, the white springing from the vicinity of Neubau, and the red from the Ochsenkopf, part of the Fichtelgebirge in the circle of the Upper Danube; these unite at Steinhausen below Kulmbach, and flow in a general western course to a point a few miles west of Bamberg. Bamberg is on the Regnitz, a large stream which joins the Main on the left bank, a little below Bamberg. The Main continues a general western course to Schweinfurth, Kitzingen, Würzburg, and Aschaffenburg, whence it passes into the territory of Hesse. It is navigable above Bamberg, and in its course through the northern circles of the Upper and Lower Main receives the Rodach near Staffelstein, the Franconian-Saale at Gmünden, the Regnitz (as already mentioned), below Bamberg, and many other smaller streams. There are three other rivers of note which rise in the Bavarian territory · the Eger and Saale, both come from the Fichtelgebirge; the former runs eastward in the circle of the Upper Main into Bohemia; and the latter northward from the Zetterwald in the same circle into Saxony; and the Fulda, which flows immediately into Electoral Hesse, and after its junction with the Werra forms the Weser.

Bavaria does not yet possess canals of any magnitude. There is a canal in the neighbourhood of the Ammersee, in the western part of the circle of the Isar, 13,000 feet in length, which enables timber-rafts to avoid the hazardous navigation of that lake as well as to save a distance of more than five miles. A cut was made in 1818 betweeen Wörth and Knitlingen (both on the Rhine), 10,624 feet long and sixty-two feet broad, with sluice-gates upon the Rhine at each extremity. Another canal was finished in 1807, between Rosenheim and Kufstein, which is 7400 feet long and thirty-six broad, and by which nearly two square miles of highly fertile land have been brought under cultivation. There is also a navigable canal from Frankenthal to the Rhine. In the year 793 the Emperor Charlemagne resolved upon uniting the German Ocean with the Black Sea by a canal which would have run from the Altmühl to the Regnitz, and thus have established a navigable line between the Danube and the Rhine through the Main; and there is every prospect, from the active exertions of the Bavarian government to forward this great object, that this undertaking will now be accomplished.*

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* The official prospectus upon which, as well as upon a law passed in July last (1834), a company is forming for the purpose, states, that 'the Junction Canal between the Danube and Rhine, by means of the Main, including the portion of the river Altmühl which is to be made navigable, will be 592,543 Bavarian feet, or twenty-three and a half German miles in length (about 563,900 English feet, or 107 miles). It is to pass in the direction of the two great commercial towns Nuremberg and Fürth. Its proposed dimensions are a breadth of fifty-four feet at top and thirty-four feet at bottom, and a depth of five feet. The width of the chambers for the sluices is to be sixteen feet,

On the Boden See (Lake Constanz) are situated the harbour and fortress of Lindau, the most south-western point in Bavaria, but only a small portion of the surface of this lake belongs to Bavaria. There are numerous lakes within the Bavarian territory. The largest is the Chiem-see (lake Chiem), which lies between the Inn and the Alz, about thirteen miles south of Wasserburg and twenty miles east of Rosenheim, in the circle of the Isar; its surface is about 22,400 acres; it is about thirty-five miles in circuit, and its greatest depth is above 500 feet. Three islands, or rather hills, rise above its surface, on two of which are the remains of suppressed ecclesiastical communities: its fisheries, which belong to the crown, are extremely productive. In the western part of the same circle is the Würm, or Stahrenberger-See, a beautiful lake, about sixteen miles south-west of Munich, fourteen miles in length and about four in breadth. The Ammer-See, west of the Würm-See, is a beautiful piece of water, about twelve miles long and twenty-seven in circuit; its area contains about 11,000 acres, and its greatest depth is 269 feet. There are seven villages on its western banks: it abounds in fish, and derives its name from the Ammer, Amper, or Amber, which falls into it at its southern extremity and quits it in the north-east near Eching. This lake is united by the river with the Staffen or Staffel-See, a lake on the west side of the town of Murnau, about five or six miles in circuit. The Waller or Walchen-See (Lacus Wallensis), is another large lake to the south-east of Murnau, containing about 13,500 acres. This lake appears to be an old crater, an opinion which has gained more general credit from the violent agitation of its waters during the great earthquake of Lisbon in November, 1755. Its greatest depth is 612 feet, and it lies 561 feet higher than the adjoining Kochel or Kechel-See, which is also situated in the south-western part of the circle of the Isar, on the road from Munich to Innsbruck. The surface of the Kochel-See is estimated at about 1200 acres and its depth at 210 feet; both these lakes are full of fish. The most south-eastern of all the lakes in Bavaria is the King's (König) or Bartholomæus-See, in the same circle: its banks are precipitous, and it is surrounded by mountains. The Königsbach throws itself into the lake from a lofty precipice. South-east of Munich, between the Isar and Inn, about thirteen miles east of Holzkirchen, is the beautiful lake called the Tegern-See, with a royal residence, once a Benedictine monastery, on high ground at its south-east extremity: it is encircled on all sides by green valleys, woods, and mountains, and has an elevation of 2187 feet above the level of the Mediterranean: its length is about a mile and a half, and its breadth about two miles: its greatest depth is 337 feet. On its east side is the Quirine spring, a spring of naphtha, discovered in 1430, which flows from a layer of peat: the liquid is of a greenish-brown tint, inflammable, and affords, in some years, a supply of about fifteen or sixteen gallons.

Climate.—The climate of Bavaria is, on the whole, temperate and healthy. It is cold and bleak in the mountainous districts, but milder in the plains and valleys through which the Main, Altmühl, and Regnitz flow, particularly in the parts adjacent to the first of those streams, where the Thuringian and other mountains shelter them from north winds. In these parts the chestnut and almond thrive; and the vine is cultivated for wine; but the latter does not succeed so well in the low country about the Danube, which suffers from extreme cold in winter and oppressive heat in summer. In the elevated regions of southern Bavaria, fruit cannot be raised. The Rhenish possessions have a climate as mild and salubrious as the country traversed by the Main, except in some districts of the west, which are intersected by the Vosges and their branches: here the winter still prevails, while flowers and fruit-trees are blossoming in the rich and sunny plains. 'In the plains,' says Crome, 'the thermometer seldom rises above 86° Fahrenheit, or falls below 50°.' We give this fact as we find it stated in Crome's work.

Vegetable Productions.—Few countries possess a more productive soil than Bavaria; yet, until very recently, few people have turned their natural advantages to so little account: ignorance and idleness have been the obstacles by which the improvement of husbandry has been checked. It is not many years since nearly one-third of the available surface of the circles of the Isar, Lower Danube, and Regen was lying waste and uncultivated; but a new spirit has sprung up under the present enlightened government, agricultural enterprise has been roused, and antiquated habits and prejudices are rapidly giving way to improved methods of cultivation. Large tracts of the Moose or moors have already been brought under cultivation; and the quantity of land under the plough has increased to nearly nine-twentieths of the whole surface of the Bavarian dominions. Of this quantity, six-sevenths belong to the provinces of Bavaria Proper, the area of which is more than nine-tenths of that of the whole kingdom; the remaining seventh belongs to Rhenish-Bavaria, whose surface is considerably below one-tenth of the whole.

Agricultural industry is principally directed to the cultivation of wheat, rye, barley, and oats. the produce of the crops, however, varies considerably both in quality and quantity, so much so indeed with respect to the latter, as to range from three-fold to twelve fold: on the average it may be estimated at about 5¾ bushels per English acre. The annual quantity of grain, therefore, which Bavaria raises is between 5,200,000 and 5,900,000 quarters, which agrees closely with the calculation made by Malchus, and is corroborated by the well-known fact, that the country produces a much larger supply than its own consumption requires. The circle of the Lower Danube, which comprises the larger portion of Southern Bavaria, is comparatively the most productive in grain; the circle of the Retzat, and particularly the Ansbach and Baireuth districts, are superior to the remaining provinces, which, with the exception of the Rhenish possessions, whence corn is exported, scarcely raise more grain in common years than what is adequate to their own demand. In some districts rice, spelt, maize, and buckwheat are also cultivated; but there are parts in the neighbourhood of the Spessart where the climate and soil are unfavourable to the growth of almost every kind of corn-seed.

Next to grain, the vine and hop-plant are important objects of cultivation. The former is grown in few districts, except the circles of the Rhine and Lower Main. The Lower Main produces the Franconian wines, mostly white, known by the names of the Main, Were, Saale, and Tauber wines, which indicate the districts where they are made: the western declivity of the Steigerwald, and the Plain of Geroldshofen, have their vineyards also. The celebrated Steinwein is a produce of the Steinberg, in the Mark of Würzburg; and the no less celebrated Leistenwein is from the same quarter, namely, the southern slope of the Marienberg, near the town of Würzburg. Those parts of the circle of the Rhine which produce the choicest wine, are the vineyards near Forst, Deidesheim, and Wachenheim, on the declivities of the Hardt mountains. In favourable seasons, the quantity of wine produced in the Lower Main is estimated at 63,000 fuder (about 11,340,000 imperial gallons), and in the Rhenish province, at 92,000 (about 16,560,090 gallons): the whole amounts to about 27,900,000 gallons. Allowance being made for failures in unfavourable seasons, the average yearly produce may be estimated at 104,000 to 117,000 fuder (18,700,000 to 21,000,000 gallons), and their value at between 750,000*l.* and 850,000*l.* The cultivation of *hops* has made much progress in Bavaria: and the produce of the plantations around Spalt and Heersbrück (in the Retzat), and Höchstädt, and other parts of the Upper Danube circles, is accounted scarcely inferior to the finest Bohemian: the quantity raised every year is about 80,000 cwt., of which from 16,000 to 18,000 are exported, and the whole, at the average market-price, may be estimated at an annual value of about 7,500,000 or 8,000,000 florins (720,000*l.* to 766,000*l.*). Considerable quantities of tobacco are grown in the circles of the Rhine and Retzat, the former of which produces between 7000 and 8000 cwt., and the latter from 20,000 to 30,000; altogether more than adequate to the home demand. The cultivation of *flax* and *hemp* has greatly increased, particularly in the justiceship of Wasserburg, in the south-east of Bavaria: but the country is still dependent on foreign supplies of both articles. *Oil*, extracted from linseed, rape, and other seeds, is a manufacture so much on the increase, more especially in the two circles of the Main and in the Rhenish territory, that the exportation

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and their length 120; they are to be divided into two parts by an intermediate gate, so that the chambers may be filled for a length of 90 or of 120 feet; the last of these lengths being designed for the use of boats, loaded with timber for building, which are extremely long.' The estimated cost of this undertaking is about 817.500*l.* (8,529,997 florins), and the Bavarian government, without waiting for the complete formation of the company, have directed the works upon the Altmühl to be commenced.

frequently exceeds the importation: much oil likewise is obtained from poppies in the Lower Main; but the finer descriptions of oils consumed are of foreign growth. The raising of *silk* has occupied the attention of the government for some years past, and it has to a certain extent succeeded. The cultivation of this article has been greatly promoted by the Silk Committee of the Society of Agriculture, who imported some hundreds of mulberry trees from Italy, Hungary, and the Rhenish districts, in 1824, and distributed them in various quarters. A hundred thousand of these trees have also been raised from the seed brought from Italy, and sown in the royal plantations about the English Garden at Munich. *Fruit* is most extensively raised in the southern districts of the kingdom; though the finest sorts are probably those which are cultivated in the environs of the Main and the Rhenish territory, whence considerable quantities are exported. Liquorice (of which the Bamberg sort is considered the finest raised in Germany), aniseed, coriander, cumminseed, and saffron are cultivated in many parts. Madder forms an article of large export from the circle of the Rhine; and generally the cultivation of such roots and plants as afford a dye appears to have been successful. The potato is far more generally cultivated in the northern and Rhenish districts than in the southern: hay and other fodder for cattle are produced in abundance. Iceland moss is also collected in Bavaria.

Division of Property.—'The soil,' says St. Behlen, 'is divided in very equal proportions. In the six old circles (those of the Retzat, Regen, Upper Main, and Isar, and of the Upper and Lower Danube) there are 2,254,603 estates held by 606,989 proprietors. The same may be remarked of the circle of the Rhine; but of the Lower Main we have no authentic returns. The rare occurrence of large properties is shown by the inconsiderable number of individuals, who, as possessing freeholds rated to the land-tax at the value of 8000 florins (about 765*l.*), are eligible to seats in the legislature; for it appeared at the first election, that exclusively of noblemen and persons holding property in towns, the number of such individuals did not exceed 7181. The laws of the land are favourable to the subdivision of estates. In the circles of the Isar, Regen, and Lower Danube we find many comparatively large properties, between 200 to 400 tagwerken (170 and 340 acres) in extent; in these quarters such subdivisions are seldomest known, on account of the thinness of the population. The state possesses, in landed property and ground-rents, to the value of 209,548,415 florins (about 20,087,000*l.*), which constitutes between a fifth and a sixth part of the entire value of landed property in Bavaria.'

Forests, Timber, &c.—The proportion of soil occupied by woods and forests, as compared with the surface occupied by arable land, is nearly 66 of the former to 100 of the latter. Most of the mountains in Bavaria are finely wooded: many of the more extensive plains also contain forests. Those of the Spessart and Rhön mountains, in the circle of the Lower Main, may be considered as the most valuable; the oak obtained from the Spessart is highly esteemed, and is exported to a large amount; but the beech of the Rhön is very little inferior to it in strength. It may be observed, in general, that the woods in the lowlands consist of oaks and beeches, but, in the elevated regions, of junipers, with firs, pines, and others of the same species. Extensive tracts of wretched woodland occur in some parts, as, for instance, in the circle of the Isar, where there are upwards of 103,000 acres of such land, intersected by ranges of high barren rocks. The yearly produce of the Bavarian forests, independently of fire-wood and brush-wood, is estimated at 2,370,000 klafters, and the quantity of timber thus produced is so much beyond the domestic consumption, that, in 1821, the value of the exports was 221,350*l.* (2,309,676 florins) greater than that of the imports. The quantity of woodland belonging to the state forms one-third of the whole Bavarian woods and forests; and their gross annual value for 1821, as reported to the legislature in 1828, was about 344,530*l.* (3,595,065 florins). In consequence, however, of the heavy expenses attending their management, the rights possessed by individuals to certain proportions of the fellings and other burthensome contingencies, the net produce accruing to the state does not appear to have been more than about 160,180*l.*, or 1,671,466 florins. In this amount, we should add, no credit is taken for the quantity of timber, &c. in stock, nor for the produce of the 167,000 acres which are appropriated to the consumption of the salt-works, and to other public purposes. The remaining two-thirds of the Bavarian woodlands belong to parishes, endowments, and private individuals. The largest forests are those near Kempten, which cover a surface of 235,143 acres, and in the region of the Spessart, which are 91,740 acres in extent but in Rhenish Bavaria both timber and fuel are comparatively scarce. Potashes, tar, turpentine, and juniper berries are among the other products of the Bavarian forests.

Animals.—Bavaria is full of rivers and streams, the banks of which are bordered with excellent pastures; and they have been rendered still more productive in the two circles of the Main and that of the Retzat by artificial irrigation. The mountains also abound in pastures, which have been improved in many parts by careful cultivation. No branch of grazing, however, is so extensively pursued as the rearing of horned cattle; and in this respect the circles of the Upper Danube and Isar take the lead; yet the whole stock is inadequate to the wants of the inhabitants, and by no means commensurate with the capabilities of the country. In 1821 the stock amounted to 1,895,687 heads; and supposing the annual increase to have been at the rate of one in every three hundred for the thirteen years since elapsed, the present stock may be estimated at nearly 1,980,000. It may be observed also that the imports of oxen, hides, and cheese exceed the exports by about 16,000 oxen, 2000 cwt. of hides, and 2500 tons of cheese. Sufficient exertions have not yet been made to improve the breeds, though much good has been done by the establishment of agricultural and veterinary schools, and the distribution of prizes at the rural festivals. Of sheep, the numbers in 1821 were 1,238,103, and it is calculated that they have increased to about 1,400,000 since that time. The neglect of this branch of agriculture during the last forty years, which, we believe, is without a parallel in any other German state, may be inferred from the fact, that in the year 1794, when the Bavarian dominions were but 20,030 square miles, their flocks contained 1,046,881 sheep: whereas now, when the territory spreads over an area of 28,435 square miles, they are not more than we have stated. The majority of the Bavarian flocks are of the native breed; but great pains are at present bestowed upon their improvement, and the result has already been advantageously felt on the royal sheep grounds at Schleissheim near Munich, and Waldbrunn, as well as in other parts of the country. Much also remains to be done, we are told, towards improving the domestic breed of horses: their number, which was 324,991 in the year 1821, is now said to have risen to 340,000, exclusive of such as are employed for military service and in public establishments. The horses imported into the country, however, still continue to exceed those exported, by several hundreds annually. Swine are reared in all quarters, but more particularly in the neighbourhood of the Spessart and Rhön mountains, where acorns are abundant: though no accurate account of their numbers is extant, Malchus is of opinion that they range between 1,400,000 and 1,500,000. Of goats the stock is not large; and few mules or asses are bred. Fowl, both wild and domestic, are plentiful: the rearing of bees has been neglected until of late years. The lakes and rivers of Bavaria abound with fish: in the circle of the Isar especially, where the largest inland waters exist, and along the banks of the Main and Rhine, thousands derive a comfortable livelihood from the fisheries. The most noted species are the salmon of the Rhine, the trout of the Franconian streams, and the crayfish of the Altmühl. Pearls are found in the Ilz and other minor streams. The wolves and bears, which used to infest the forests and highlands of Bavaria, are rapidly diminishing.

Metals and Minerals.—Every inducement has been held out by the Bavarian government, both to natives and strangers, with a view to encourage the working of the mines. The principal products are iron, coals, and salt; gold and silver are found in small quantities, only in the waters of the Inn, Rhine, Danube, and Isar; quicksilver, to the amount of 280 or 290 cwt., in the circle of the Rhine; and copper, which was formerly raised in several quarters, is now confined to the works at Kahl and Kaulsdorf, in the circle of the Upper Main, which produce about 770 cwt. per annum. There are two mines of cobalt also on the latter spot, from which small quantities of tin, lead, and antimony have occasionally been obtained. The Upper Main, Rhenish Bavaria, Regen, Lower Danube, and Isar territories are the chief mining districts in Bavaria. There are, in the whole kingdom, 44 iron high-blast furnaces, of which 8 belong to the crown; 30 low-heat furnaces, 17 smelting-works, 332 forges and hammers for beating out the metal, &c., 1 steel-works, and 19 wire-mills, the annual produce of which is about 11,150 tons of raw and cast-iron, 6990 tons of wrought-iron, 4300 cwt. of steel, 7200 of plate-iron, and 4000 cwt. of wire; but as the whole quantity of metal raised is not sufficient for the consumption of the country, the deficiency is made good by importations. Of this native iron, the Isar mines at Neukirchen average yearly about 5500 tons, and the Upper Main about 4000. Bavaria possesses likewise 136 pits of iron-stone, which is raised in all of its eight circles, to the average extent of 41,500 tons a year. The coal-mines are in the districts of Stadsteinach and Wundsiedel in the Upper Main, and of Kaiserslautern in Rhenish Bavaria; the number of shafts at work in these parts is fifty-one, of which eight are the property of the crown, and the remainder of private individuals. The whole quantity raised is about 35,000 tons a year, which might be greatly increased by working the rich beds in which other districts of Bavaria are known to abound. Black-lead (or graphite) is worked in several places, particularly at Obernzell, whence much is sent to America for the purpose of making crucibles: the whole number of mines in activity is thirty-three, and the quantity produced, about 200 tons per annum. The sulphur raised in various parts is not sufficient for the home consumption. Porcelain-earth is another Bavarian product; the best is obtained in the justiceship of Wunsiedel in the Upper Main, and of a quality said to be the finest in Germany, if not in Europe. Salt has been a monopoly of the crown for several ages; and in the last century the pans and works of Schellenberg alone, from which the government supplied the country, produced 241,000 tons. The public salt-works are at present seven in number, and are established at Berchtesgaden, Rosenheim, Reichenhall, and Trauenstein, in the circle of the Isar (average produce about 28,600 tons a year), Orb and Kissingen in the Lower Main (average about 3000 tons a year), and Türkheim in the Upper Danube (average about 420 tons a year). The whole supply amounts to between 32,000 and 33,000 tons per annum: the expense is estimated at about two shillings and sixpence per ton, and the portion retained for domestic consumption at 30,000 tons. On an average of four years, the clear annual profit accruing to the state appears to have been 2,217,375 florins (about 213,000*l.*). There are, according to Stein, three hundred different sorts of marble in the circle of the Upper Main alone. Alabaster and rock crystal, the agate, jasper, and garnet, cornelians, and asbestos, should be added to the list of Bavarian minerals.

Bavaria is abundantly supplied with mineral waters, but few of them are of any note. Among the saponaceous springs we may instance the well of the Virgin (*Marienbrunnen*) at Moehlingen: there are alkaline waters at the monastery of Heilsbrunn in the Retzat, as well as at Bakler in the Würzburg territory; muriatic springs at Benedictbeuern and Kissingen, and at the Wildbad at Rothenburg; sulphuretted-alkaline waters at Abach; and chalybeate springs in various quarters, particularly the Fokberger Baths and Alexander Baths in the circle of the Main.

Inhabitants.—It appears from the tabular statement given above that Rhenish Bavaria surpasses every other part of the kingdom in density of population, the number of inhabitants to the square mile being 230; in the Lower Danube it is 186; in the Upper Main, 171; in the Lower Main, nearly 163; in the Retzat, 138; in the Upper Danube, nearly 132; in the Regen, 123; and in the Isar, although the capital with a population of 80,000 souls and upwards lies within it, not quite 100. The comparative numbers of the two sexes are as follow:—

In the year 1819, 1,788,495 males; 1,908,900 females.
„ 1825, 1,929,625 „ 2,052,912 „
„ 1828, 1,980,278 „ 2,056,739 „

From the average of these three years the proportion of males to females is 125 of the former to 132 of the latter, or 1000 to 1056; which is a little less than the proportion given by Malchus, who states the excess of females over males as being 'not quite 5½ per cent.' According to Rudhart's statement in 1826, the number of dwelling-houses was then 619,482, and the number of families inhabiting them 787,318; each family averaging between four and five individuals. The proportion of the population in towns having 500 families or upwards is also estimated by him at one-seventh of the entire number of inhabitants; and so low a proportion cannot be matter of surprise in a state which is so pre-eminently agricultural. The average proportion of births and deaths for the three years 1819, 1825, and 1828, is 143,576 of the former to 108,345 of the latter; whence we have an average increase, on these three years, of 35,231 souls.

The number of parishes is 8155, and that of public and private buildings of all descriptions was, in 1833, 1,271,567, the value of which was estimated at 778,908,699 florins (about 74,645,417*l.*). The number of such buildings insured against fire was 1,136,977, and their estimated value was 551,026,798 florins, or 52,806,730*l.*

According to Von Zedlitz, the inhabitants of Bavaria consist of 4,113,500 Germans, 60,000 Jews, and 6500 French, or persons of French extraction, who are mostly scattered about Landau and in the circle of the Rhine; the German part of the population is divided into native Bavarians, Franconians, Swabians, and Rhinelanders.

Religion.—We know of no classification of the inhabitants according to their religious tenets of a more recent date than that given by Von St. Behlen for the year 1828, at which period they were composed of

2,880,383 Roman Catholics,
1,094,633 Protestants,
57,574 Jews, and
4,427 of other persuasions.

The 'Edict of Religion' of the 16th May, 1818, does not recognize any predominant national church, but establishes full liberty of conscience, and gives both to Roman Catholic and Protestant an equality of civil rights; the privilege of private worship is secured to individuals of every persuasion, and that of public worship may be granted by the king upon the application of a sufficient number of families. All matters connected with the temporal concerns of religious communities are conducted by the section for ecclesiastical affairs in the home department; but the exercise of judicial power in the Catholic Church, with reference to members of their own body, is entrusted to the archbishops, bishops, abbots, and deacons. The king is the temporal head of that church, and no laws, ordinances, or other public acts relating to it can be promulgated without the royal sanction.

By the concordat concluded with the Pope, on the 5th June, 1817, two archbishoprics, Munich and Bamberg, and six bishoprics, Würzburg, Eichstädt, and Spires, under the former, and Augsburg, Ratisbon, and Passau, under the latter, were instituted. The Roman Catholic Church in Bavaria possesses 191 deaneries, and 2512 cures of souls. The Lutheran Church, which is most prevalent in the circles of the Retzat, Upper Danube, the two Mains, and Rhine, contains 37 inspections, consisting of 1036 parishes or ministries, under the conduct of the three consistories of Baireuth, Ansbach, and Spires, which are subordinate to the 'Independent Superior Consistory' of Munich, the latter being itself subject, to a certain extent, to the control of the home department. We observe that the king of Bavaria does not allow his prelates to use the præfix 'Dei gratiâ' in their titles, considering it a peculiar attribute of royalty; but he permits them to substitute, as an appendix to their official designation, the words 'Divinâ gratiâ.' The revenues of the Roman Catholic Church arise from estates and endowments, over which its hierarchs exercise unlimited control: out of these revenues the archbishop of Munich receives an annual stipend of about 1920*l.* (20,000 florins), and the archbishop of Bamberg, about 1440*l.* (15,000 florins); the bishops of Augsburg, Ratisbon, and Würzburg, 960*l.* (10,000 florins) each, and those of Passau, Eichstädt, and Spires, about 765*l.* (8000 florins) each. Several monasteries and convents have been allowed to spring up again of late years, for the professed purpose of instructing young persons in religious and worldly knowledge, of assisting in the ministerial office, and taking charge of the sick. The present number of religious establishments is thirty-four, of which fourteen are very recent revivals of suppressed communities. In the year 1832 there was not one such establishment in the circle of the Retzat; but there were twelve in the Upper and Lower Danube, seven in the Isar, four in the Regen, ten in the Upper and Lower Main, and two in the Rhenish territory. The higher orders of the clergy, including deans of chapters, are nominated by the sovereign; and, on the representation of the bishops, the circulation of such books as they may deem adverse to 'the true faith, good manners, or church discipline is prohibited. The president of the Lutheran Consistory has a seat and vote in the Senate or Council of the Kingdom (*Reichs-rath*); and the Protestant clergy are maintained by the state at an expense of about 28,000*l.* (290,000 florins) a year. An annual grant of about 95,000*l.* (1,000,000 florins), is likewise made for the support of the inferior Roman Catholic ministers. Besides the pure Lutherans, there are about 7000 reformed Lutherans in Bavaria; but the members of the two persuasions in Rhenish Bavaria came to an understanding in 1818, when the vote of every individual was taken, and it appeared by the result, that 40,167 were in favour of the union, and only 539 against it. Since that period they have formed one single religious community, under the designation of the 'Protestant Evangelical Christian Church.' There are a few Mennonites and Herrnhuthers in the Bavarian States, and since the elevation of the present king's second son to the new throne of Greece, a number of Greeks have taken up their abode in Munich, where they have a separate school for their children, and are allowed the use of one of the churches. The Jewish portion of the population are mostly settled in the Retzat and Lower Main: they enjoy full liberty of conscience, but, under the edict of the 10th June, 1813, are not admitted to participate in civil rights and immunities, unless they become naturalized and adopt distinct family names.

Education.—This important department is under the immediate superintendence of the 'Superior Board of Education and Ecclesiastical Affairs' (*Ober-Schul-und-Kirchen-rath*), attached to the ministry of home affairs, and under the subordinate direction of the several provincial governments, one member of which has particular charge of all matters connected with scholastic institutions. Subordinate again to the latter are the inspectors of district and local schools: those for the local schools being in general the ministers and elders of parishes. No child is excused attendance at the schools, except such as have received permission to pursue their studies under private tutors. There are three universities, two Catholic, at Munich and Würzburg, and one Protestant at Erlangen; the two former are attended by about 2200, and the latter by about 400 students. These three universities have eighty-six professors, and between twenty and thirty tutors (*docenten*), private lecturers, and others, besides excellent scientific collections and auxiliary institutions. Next in rank are the seven lycæa, thirty-four schools of studies, and twenty-one gymnasia, of which Munich and Augsburg have two each: the gymnasia are conducted by seventy-nine professors and 147 other teachers. The lycæa are attended by about 700, and the gymnasia by about 3100 pupils. There are also twenty one pro-gymnasia, and sixteen 'preparatory Latin schools' in Munich, Augsburg, Ratisbon, Würzburg, Landau, Kaiserslautern, &c.; in the last (the Latin schools) there are about 2300 pupils. The number of elementary, mechanics', and Sunday schools exceeds 5000; but we have no return of them of a later date than the year 1821, at which time there were 5008 school-houses, with 7114 masters and assistants, and 489,196 pupils attending them. Bavaria has eight seminaries for the education of teachers, and its legislature annually votes about 3000*l.* (32,000 florins) for the encouragement of elementary schools, besides about 2350*l.* for the inspectors' expenses, and allowances to retired masters. The whole public grant for forwarding 'education and intellectual culture' is 767,811 florins (about 73,600*l.*) The seminaries for educating candidates for ecclesiastical preferment are seven in number. There are veterinary schools at Munich and Würzburg; a royal academy of the arts and sciences of nearly 400 members, and another of the fine arts with eight professors, and an agricultural society, which distributes annual prizes, all in Munich; an academy of physics and medicine at Würzburg, and another of naturalists, as well as a medico-physical economical society at Erlangen: a horticultural society (the Pegnesian order of flowers) in Nuremberg, where there are also societies for the promotion of national industry and the propagation of Christianity; a botanical society at Ratisbon; a school of the fine arts at Augsburg, in connexion with the academy in Munich: and numerous other associations of a useful character. The largest public library in Bavaria is the 'Central Library' in Munich, which contains upwards of 500,000 volumes, including 16,000 manuscripts, 400,000 pamphlets and dissertations, and 250,000 distinct works: the University Library, in the same city, has upwards of 160,000 volumes; that of Würzburg, above 30,000; and that of Erlangen, between 40,000 and 50,000. No printing-press can be established without the previous sanction of the king. Piracy of books, as well as the sale of pirated works, is held to be a misdemeanor; and every bookseller, dealer in antiquities, owner of a circulating library, printer, and head of a lithographic establishment, is placed under the control of the local police in every town, and liable to be brought under judicial cognizance for any offence against the laws, morals, or the public safety.

Constitution.—Most of the states, of which the kingdom of Bavaria is composed, namely, the former duchy of Bavaria, the upper Palatinate, the duchy of Neuburg, and the principalities of Ansbach, Baireuth, Bamberg, and Würzburg, possessed representative constitutions before their consolidation under one head. But the aristocracy in these territories had succeeded in rendering these representative constitutions a dead letter: and in fact, they had long been in a state of abeyance previously to being abrogated by the terms of the constitution promulgated by the late king, Maximilian Joseph, on the 1st of May, 1808. The convulsions which subsequently affected the whole of Europe rendered the constitution of Maximilian Joseph incompatible with the new order of things; and the same king, therefore, on the 26th of May, 1818, granted the Bavarians a new constitution, which defines and establishes their rights and privileges. Its fundamental principles are - liberty of conscience and freedom of opinion, with the reservation of legal provisions against the abuse of either: the right of every native-born subject to be employed in the public service, without exception on account of birth or rank in society; general liability to personal service in the national defence; equality of all before the law: the impartial and uninterrupted administration of justice; general liability to taxes, and an equitable distribution of them; and a legislature, elected by all classes of resident citizens, and enjoying the right of discussing and approving laws, voting the public taxes, and requiring the redress of all infringements upon the rights recognised by the constitution. The kingdom of Bavaria, by this charter, is declared a 'sovereign monarchical state,' and the legislative power is vested in two chambers, conjointly with the king, as head of the state. The succession is limited to the male line, according to the right of primogeniture, with a proviso, that on the extinction of direct heirs male, the next male descendants of the female line shall succeed. No offices of high rank in the civil or military service, nor any office under the crown or in the church, nor any ecclesiastical benefice, can be conferred upon any individual who is not a native-born citizen or legally naturalized. Feudal bondage is abolished, as indeed it was previously by the edict of the 3rd of August, 1808. No Bavarian, to use the words of the charter, can be deprived of his natural and recognised judges. All endowments for public worship (*Kultus*) and education, and for charitable purposes are placed under the immediate protection of the state.

The legislature consists of two chambers, namely the Senators (*Reichsräthe*) and the Deputies. The former is composed of the princes of royal blood, who have attained their majority,—the great officers of the crown,—the heads of houses in the cases of such principalities and earldoms as were parts of the Holy Roman Empire,—a bishop named by the king,—the president of the Protestant General Consistory,—and lastly, of those individuals, whom the king may create members of the chamber for life or hereditarily. The Chamber of Deputies consists, 1, of such landed proprietors as exercise judicial powers in right of their properties (*gutsherrliche Gerichtsbarkeit*), provided they have no seat or vote in the upper chamber;—2, of deputies from the universities:—3, of ecclesiastics representing the Roman Catholic and Protestant churches;—4, of deputies from cities and market-towns;—and 5, of such landed proprietors as do not come within the classes already described. The number of members is in the proportion of one to every 7000 families: of these members one-eighth of the whole number must be taken from class 1: one member from each of the three universities; one-eighth from class 3; one-fourth from class 4; and two-fourths of the whole number from class 5. The chamber is re-elected every six years, except when the king dissolves it, and then the members going out are re-eligible. The chambers cannot proceed to deliberate unless two-thirds of the deputies are present; and both chambers commence and close their sessions at the same time. All motions respecting the public burthens are, in the first place, brought under the consideration of the Chamber of Deputies; in respect of any other subjects the king determines before which chamber they shall be first brought. No direct or new indirect taxes can be levied, nor any augmentation or alteration of existing taxes be made by the king, without the previous sanction of the legislature; and the same sanction is required before any new law or any alteration, authentic exposition (*authentische Erlaüterung*), or repeal of an existing law, affecting the freedom of persons or properties, can take effect. The free right of complaint against violations of the constitution is secured to every citizen, or district. The king is bound to call the legislature together once at least in every three years. Its ordinary session lasts two months; but it may be extended or adjourned, or it may be dissolved, as he may deem expedient: in the last case, a new election of deputies must take place within three months. The ministers, though they are not members of the chambers, have the right of being present at all deliberations. The king, upon his accession to the throne, swears to 'govern according to the constitution and laws of the kingdom:' and every prince of royal blood, upon attaining his majority, solemnly makes oath that he will rigidly observe the terms of this constitution.

The Public Administration.—At the head of public affairs is a council of state, established by a royal decree of the 18th of November, 1825: it is composed of the king, the crown-prince, if of age, of such princes of royal blood in a direct line as are also of age, resident in the capital, and appointed of the council by the sovereign, of the ministers of state, the field marshal, and six councillors nominated by the sovereign. The executive authority is vested in the heads of the following five departments,—the royal household and foreign affairs,—justice,—home affairs,—finance,—and the army—whose heads form the cabinet, and are assisted at their meetings by a secretary-general. Each of the eight circles or provinces has a provincial government consisting of two boards: the one called the Chamber of the Interior, takes charge of civil concerns, the police, the schools, &c.; the other termed the Chamber of Finance, manages the affairs of the domains of the state, and every matter connected with the financial department. The commissary-general (*General-commissair*) is president of both boards, and in some circles he is assisted by a vice-president; each board consists of a director, and several members, called councillors and assessors. The medical-police department is attached to the Chamber of the Interior; and a councillor of medicine (*Kreis-medicinal-rath*) superintends it. Each circle has also its official architect and surveyor.

The Legislature.—The members composing the Chamber of Senators are at present fifty-one: thirty attend in right of hereditary rank or dignities, or from the nature of their family possessions; and twenty-one have been nominated by the king either for life (ten) or as hereditary senators (eleven), the latter of whom are always landholders of noble blood, and must pay at least 144*l*. (1500 florins) clear in land or domanial taxes. St. Behlen observes, that 'there are few noble families by whom this condition is fulfilled.' The number named for life cannot exceed one-third of the whole body of hereditary senators. This chamber, which has a President and Vice-President, cannot open any sitting unless one-half or upwards of the members are present. The qualifications required for a member of the Chamber of Deputies are—that the candidate has completed his thirtieth year; that he is a free and independent citizen; that he is a member of either the Roman Catholic, Lutheran, or Reformed-Lutheran church; that no charge of crime or misdemeanor has been proved against him; and that he pays the house or land-tax on property of the value of 765*l*. (8000 florins), at the least. This chamber is at present composed of 123 members: namely, fourteen landholders, exercising judicial powers on their estates; three deputies from universities; eleven from the Roman Catholic ecclesiastical bodies, and five from the Protestant: thirty from cities and towns: and 60 from the body of landholders not exercising judicial powers. Its deliberations are conducted under a President and Vice-President. At the commencement of each session, an accurate account of the state and appropriation of the public income is submitted by the executive: the national debt cannot be increased without the consent of the legislature, and each chamber appoints a commissioner to assist the Board for its liquidation. Conditions are not allowed by the constitution to be coupled with the voting of any fresh taxes; nor can any subject, as to which the chambers are at variance, be discussed a second time at the same sitting. District Assemblies were likewise established in the year 1825: these consist of the burgomaster, a deputy from each town, or place, where a market is held; of the headsman of each parish (Gemeinde-Vorsteher); a deputy, being the person who pays most taxes, or a small land proprietor, from each parish; and a certain proportion of landholders, tithing-men, and farmers; besides a representative for the financial department of the district. A royal commissioner acts as president of these assemblies; the functions of which are to assess the public burthens and district rates equitably in each parish, and to decide all local questions relating to any matter having reference to these burthens and rates: such as their application in support of establishments for the poor, the sick, &c., in making roads, &c.

Finance.—The continued state of warfare, in which the consequences of the French Revolution involved the Bavarian dominions, and the sacrifices which were made first, in support of Napoleon, and subsequently in shaking off his yoke, involved the state in great financial embarrassments. At the time of the peace of 1815, the state paper had fallen from forty to fifty per cent. below its nominal value; many financial accounts were twenty years in arrear; and the public income was not only of a precarious nature, and the receipts subject to all sorts of irregularities, but seriously prejudiced by neglect or obstacles to their collection. This unfortunate state of things was aggravated by the failure of the crops in 1816 and 1817. The change of ministry, which occurred in the last of those years, has proved eminently beneficial to the kingdom in a financial point of view, for it was the signal for the adoption of a series of judicious measures which introduced order and economy and have already produced their natural results. It appears that in 1819 the excess of the expenditure over the income was 2,007,800 florins (about 192,115*l*.): that the national debt amounted to 105,740,173 florins (10,133,430*l*.), and that the surplus fund towards the redemption of this debt was 1,550,000 florins, (148,542*l*.). In the same year the financial laws enacted by the legislature, fixed the income for the year at 31,126,811 florins (2,982,986*l*.), and the expenditure at 31,017,596 (2,972,519*l*.). The improved administration of the Bavarian finances, however, during the succeeding thirteen years, enabled the government to report to the Chamber of Deputies, in March last (1834), that the surplus revenue for the financial year, 1829—1830, which had been 5,032,353 florins (482,267*l*.) at the beginning of that year, had increased at the close of it to 6,697,731 (641,865*l*.), which surplus had been appropriated subsequently to the current service of the state. They also reported, that in the year 1831-1832, the revenues had produced 29,217,009 florins (2,799,963*l*.), and that the expenditure had been 27,095,883 florins (2,596,688*l*.), leaving a surplus, inclusive of 3534 florins from former years, of 2,121,660 florins (203,613*l*.). With respect to the *national debt* we find, that, between the years 1819 and 1829, it had, from various circumstances affecting the earlier part of this interval, increased from 10,133,430*l*. to 11,392,019*l*. or 118,873,250 florins; and the additions, which raised it to 12,595,276*l*. (131,428,972 florins) in the year 1833, have been chiefly occasioned by the extraordinary expenses attendant upon the convulsed state of Germany since the change of dynasty in France, in August, 1830. *The net public income* of Bavaria for the third financial period, 1832–1837*, has been fixed by the legislature at 2,738,656*l*. (28,577,285 florins); the charges of management, both in collecting the taxes and carrying on the crown monopolies (regie-aufwand), being estimated at 971,656*l*. (10,139,025 florins), and having been previously deducted. The expenses of management amount, therefore, to nearly 26½ per cent. on the gross revenue of 3,710,312*l*. If we assume the population to be 4,200,000, the average amount of revenue contributed by each individual will be found to be 13*s*. 0½*d*. per annum. The *expenditure* for the same period, with a reserved fund of 52,405*l*. (546,840 florins), is fixed at a sum exactly corresponding with the income, of which 2,329,518*l*. (24,308,014 florins) are to be appropriated to the general expenditure of the state, and 409,138*l*. (4,269,271 florins) to the budgets of the several circles (kreis-fonds). The subsequent items of *receipt* are, among others, applied to the purposes of the general expenditure: namely, from the immediate property of the state (national domains and forests, public farms, crown manufactures of glass, molasses, and porcelain, as well as the pearl-fisheries in the Upper Main, Regen, and Upper Danube), 719,007*l.* (7,502,687 florins); from national royalties and establishments (mines and salt-works, the post-office, lotteries, mint, and the profit on the publication of the 'Law and Government Journal') 373,870*l.* (3,901,252 florins); from indirect taxes, such as stamps, tolls, &c., 892,004*l.* (9,307,874 florins): and from direct taxes, 699,439*l.* (7,298,498 florins). Among the items of expenditure are, for the royal household and foreign affairs, 48,560*l.* (506,705 florins); education and civilization (*bildung*) 73,581*l.* (767,811 florins); public worship (viz. Roman Catholic, 100,269*l.*, and Protestant, 27,775*l.*), in all 128,044*l.* (1,336,116 florins); public safety, 39,675*l.* (414,000 florins); the construction of highways, bridges, &c., 118,087*l.* (1,232,216 florins); interest and redemption of the national debt, 785,255*l.* (8,193,964 florins): civil list, 287,500*l.* (3,000,000 florins); and army expenses, 546,250*l.* (5,700,000 florins), independently of the gendarmerie.

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* For the second financial period, 1825—1831, the income had been fixed by the states at 2,971,840*l*., or 29,132,260 florins, and the expenditure at 2,791,400*l*., or 29,126,600 florins.

Military Resources. - The Conscription Law of the 29th of March, 1812, rendered every male in Bavaria, up to a certain age, with the exception of ecclesiastics and the sons of noblemen, liable to the ballot; but a new law of the 1st of May, 1829, allows every Bavarian to enlist between the ages of eighteen and thirty; and such as have already served six years may contract a fresh engagement in the service until they reach their fortieth year. Every Bavarian is liable to the Conscription Law after he has completed his twenty-first year: and from the first of January succeeding the ballot by which he has been drawn, his liability to serve in the army, if called upon, continues during the two following years: the exemptions are confined to the only son of a parent, who has already lost two sons in the service, and the surviving sons of every parent who has lost three sons in a similar manner. The period of service is six years; no Bavarian can settle or marry, or receive any definitive appointment before he has done all that the law requires with regard to his liability to bear arms. Certain exemptions are granted in the case of ecclesiastics and students, as well as in the case of sons, without whose aid the subsistence of families would become precarious.

Bavaria, as a member of the German Confederation, furnishes the largest contingent of any exclusively German state. It forms the seventh corps of the confederate forces, and consists of 35,600 men: namely, 5068 cavalry, 26,215 infantry, 1380 sharpshooters, and 2919 artillery, pioneers, &c.; to which eighteen howitzers, and fifty-four field-pieces and cannon are to be added. The real strength of the army, however, supposing the present scale of its organization to remain, is now, and would, in the event of a war, be as follows:

			Peace.	War.
Infantry...	16 regts. of the line 4 battal. of sharpshooters	each 2 battal.—each battal. 6 comp.	40,608	41,688
Cavalry...	2 regts. of Cuirassiers 6 do. Light Cavalry	each 6 squadrons	9216	9360
Artillery...	2 regts.—each 2 battal. of 6 comps.—each comp. being competent to serve a battery of 8 cannon		3120	3156
	2 comp. of sappers, 1 of miners, 1 of pontoonmen, and 1 of artificers		650	720
			53,594	55,224

The effective strength of the army, however, as laid down in the details which form the groundwork of the military budget for the third financial period (1832—1837), is of a somewhat different character, for they give as

Constantly present, Officers and others on service,—including, 1 Field-Marshal, 2 Generals, 15 Lieut.-Generals, and 26 Major-Generals, the civil and medical employés, &c.	2119
Subaltern officers, engineers, &c.	4109
Infantry	6912
Cavalry	5032
Artillery, sappers and miners, &c.	1470
	19,642
Present for 1 month only. In all	21,224
Constantly on Furlough. In all	17,196
	58,062

The difference of 2838 men between these numbers and those which have been given as the full war complement, arises from the omission in the last statement of the civil and medical employés, and others, not immediately bearing arms. The infantry and cavalry form four divisions (head-quarters, Munich, Augsburg, Nuremberg, and Würzburg, respectively), each of which consists of two brigades, or four regiments of infantry of the line, one battalion of sharpshooters, a brigade of two regiments of cavalry, and two batteries of heavy cannon, and one of field-pieces. The artillery, pontoonmen, and artificers, as well as the corps of engineers, sappers, and miners, constitute distinct divisions.

The Landwehr, or militia, is, under the ordinance of the year 1826, composed of all Bavarians, who have not been already drafted into the ranks of the active army or battalions of reserve, are not under nineteen or above sixty years of age, and are not noblemen or ecclesiastics. The number is determined by the king according to the emergency; but this force has not hitherto been completely organized, though there are staffs and head-quarters appointed in every circle. On the scale projected it would amount to 250,000 men and upwards, independently of any levies in the Rhenish territory. There is a corps of gens-d'armes, also consisting of nine companies, one for Munich and one for each of the eight circles, and mustering in all about 1700 men. Bavaria has a right to pass by a military road through the territory of Baden, which gives Bavaria direct access to its dominions on the Rhine.

The expense of the military establishment for the six years, 1825-6—1830-1, was 41,719,962 florins, which averages 6,953,327 florins, or 666,366*l.* per annum. In 1824 the moveable property belonging to the Bavarian army was estimated at 979,415*l.* (10,219,987 florins), and the immoveable at 350,905*l.* (3,661,627 florins). The property and funds for the relief of widows and orphans, invalids, &c., also amounted at that time to 385,233*l.* (4,019,821 florins).

The fortified places in Bavaria are—Landau, the strongest of its fortresses, in the circle of the Rhine: it is also one of the fortresses immediately attached to the German Confederation; Passau, on the Danube, in the circle of the Lower Danube; Würzburg, in conjunction with the citadel of Marienberg; Ingolstadt, at the confluence of the Schütter and Danube, in the Regen, at this moment in course of construction; and Vorchheim, in the circle of the Lower Main, a place of inconsiderable strength. Bavaria also possesses several mountain strongholds, such as Rosenberg, near Kronach, in the Upper Main: Rothenberg and Wülzburg, in the Retzat; and Willibaldsburg, near Eichstädt, in the Regen.

Nobility.—The nobility of Bavaria form 2107 families, of whom there are not 1000 possessed of landed property: and the relative proportion of their property as compared with that of the remaining subjects of the crown is as one to nine. The registered nobles in 1823 consisted of 1 grand duke, 13 princes, 154 counts, 422 barons, and 1038 of inferior rank, using the præfix of 'Von.' In all cases where a nobleman enters a menial service, or opens and conducts a shop or warehouse, his title of nobility becomes suspended. In civil and criminal matters he is exempt from the jurisdiction of local courts of judicature, and none but a noble is entitled to establish a seignorial tribunal of justice: but he does not enjoy any advantages, with respect to taxation, legislative pre-eminence, or government appointments, which are not common to his fellow subjects. The royal title is simply '———, by the Grace of God, King of Bavaria.' The order of St. Hubert (1444), with 142 members, holds the first rank: that of St. George, instituted during the Crusades, follows next in precedence; the other orders are, that of Maximilian Joseph (1806), a military, and of the Bavarian crown, a civil order; of St. Michael (1693), and the order founded by the present king in 1827 for the faithful discharge of civil or military duties after a service of fifty years.

Manufactures.—In Bavaria, as in many other German states, the profits arising from vast establishments, and the concentration of productive powers, are comparatively unknown; manufacturing industry is mostly diffused over a multitude of adventures on a small scale. Bavaria is also essentially an agricultural country, and hence the deficient supply in many branches of its manufactures. That of linens, for instance, which is the chief, is not confined to a few large establishments, but is scattered over the whole state, and in many districts the agricultural population partly maintain themselves by weaving linen. The majority of the articles made are of the coarser descriptions; and a large proportion of them are the produce of the Upper Main (where upwards of 7000 weavers and 1000 apprentices are employed upon them), and of the Upper and Lower

Danube. The finer sorts, particularly damask, are inferior both in texture and finish to the Saxon or Silesian; still the quantity exported exceeds the quantity imported by about 12,000*l.* a year. Linen-yarn is also spun in some districts, but not to any great extent, and chiefly for exportation. The manufacture of woollens and worsted hose is carried on principally in the circles of the Regen, Danubes and Mains, the finest being produced in Ansbach, Baireuth, Lindau, Munich, and the Upper Palatinate; but this branch of industry is in the hands of individuals, and not carried on in large factories. The supply is very inadequate to the consumption of the country, and sometimes the excess of imports over exports has amounted to 40,000*l.* per annum. There is a similar deficiency in the domestic supply of manufactured cottons; the use of improved machinery, however, is gradually increasing in many quarters, and additions are constantly making to the number of spinning-mills. The districts about Augsburg, Kaufbeueren, and Hof are the most important seats of this branch of Bavarian industry, and numbers are also employed in hand-spinning. The yearly importation of cotton goods is still said to be 100,000*l.*, and that of cotton yarns to be 51,000*l.* more in value than the exportation. The leather manufactories are of considerable importance, but mostly carried on by numbers of small manufacturers, particularly in the minor towns in the circles of the Retzat, Isar, Upper and Lower Danubes, and of the Rhine. Bavarian calf-skins are in great repute and largely exported, but sole leathers are not produced in sufficient quantity for the home demand. Between the years 1819 and 1824, the yearly value of the leather exported (20,396 cwt.) rose to 58,640*l.*, and that of the same article imported (17,133 cwt.) to 49,260*l.* The supply of paper, of which Aschaffenburg, Nuremberg, Fürth, Augsburg, and Schwabach furnish many fancy sorts, is beyond the domestic consumption; though the usual descriptions are indifferent, there are still about 2800 cwts. exported to the value of about 7000*l.* The number of paper mills is 150, of which 29 are in the circle of the Upper Danube, 25 in the Lower Main, 27 in the Rhine, and 23 in the Regen. Schweinfurt and Mainberg possess large manufactories of paper-hangings, which are of excellent quality and in much demand in other German states. Straw-platting has increased considerably of late years; even in 1824 the exportation amounted to 3312 cwt. and 16,740*l.* in value; and there are some districts, such as that of Weiler in the Isar, which gain between 3800*l.* and 4800*l.* a year by this branch of industry. The 45 glass-houses in Bavaria, of which there are 13 in each of the circles of the Regen and Lower Danube, and 8 in the Upper Main, produce window-glass, bottles, and other ordinary glass-ware to such an amount, that the exports exceed the imports above 19,000 cwt. and 55,000*l.* in value. In the finer sorts the quality is much inferior to the English, and even the French or Bohemian. The number of works for grinding and polishing looking-glasses is upwards of 100; they export on an average 11,700 cwt. of the article in a finished, and 5100 cwt. in an unfinished state. Nuremberg, Fürth, Bamberg, and Augsburg are the principal seats of this manufacture. The whole value of the glass exported is upwards of 100,000*l.* per annum. No optical instruments made on the Continent are more highly valued than those made by Utzschneider and Frauenhofer's establishment at Munich. The manufacture of articles in wood, and the felling, hewing, and general manipulation of timber occupy thousands of hands. There are nearly 2000 sawing-mills in Bavaria for the preparation of boards, deals, and laths; and almost as many families are wholly supported in Ammergau and Berchtesgaden by the manufacture of articles in carved wood, some of which are very beautiful. There are nine porcelain manufactories at work; that at Nymphenburg, not far from Munich, produces china which may bear comparison with the finest in Europe. The number of earthenware manufactories is 14, but the articles which they make are inferior to the English in strength and finish. The Bavarian crucibles are in much request; and the potteries employ nearly 2000 master-workmen, besides labourers, &c. Of slate-works there are above 350. The working of the metals chiefly consists in extensive manufactories of iron-ware, especially nails and needles, the export of which is considerable. Schwabach alone produces annually 140,000,000 sewing, and above 300,000 knitting needles. There is a manufactory of arms at Amberg which supplies the army. The gold and silver-smiths of Munich, Würzburg, Nuremberg, and Augsburg, are in great repute. Fire-arms, fowling-pieces, &c., employ 167 workmen at Burglingenfeld and Neustadt. Nuremberg is celebrated for its brass-wares. Munich and Augsburg possess cannon and other foundries. Fürth contains many beaters of gold and silver, &c., and exports leaf-gold and silver for gilding and plating to most European markets. The brewing of beer, in many respects the most important branch of manufacture in Bavaria, employs upwards of 5000 establishments, or taxed brewers, by whom more than 9,300,000 aulms (95,790,000 gallons) of beer are made, and more than 980,000 Bavarian bushels (759,500 quarters) of malt are consumed. A very favourable impulse has been given to national industry by the institution of the Polytechnic Society at Munich in 1816: its members consist of operatives, men of science, and official persons in all parts of the country; and its principal object is to afford instruction, in their respective branches, to mechanics and other work-people. An annual exhibition of domestic products and manufactures, and an award of prizes, form part of its plan. Similar societies exist in Augsburg, Nuremberg, and other towns. The Bavarian government has likewise established mechanics' schools (Gewerbs-Schulen) in most of the larger places; and there are various other institutions in Munich, Bamberg, Augsburg, Ratisbon, Fürth, Passau, Nuremberg, as well as elsewhere, for the promotion of trade and manufactures. The royal decree of the 25th September, 1825, which granted full liberty to individual skill and industry, has done much to remove the tyranny of corporate monopolies; but, owing to peculiar circumstances, this decree has not hitherto come into full operation.

Trade.—Though Bavaria is an inland country, its trade is greatly favoured by its geographical position, which has rendered it in some degree a central point between the Mediterranean, the Baltic, and the German Ocean, and a medium of intercourse between the west and east of Europe. This advantage is increased by its natural productiveness, and by the navigable lines of the Danube, Rhine, Main, and other streams, over which above 1600 larger and smaller bridges have been thrown; as well as by the constant attention which the government has paid of late years to the maintenance and multiplication of public roads, the length of which is estimated at upwards of 5500 miles. The treaties of reciprocity, which have thrown the markets of many neighbouring states open to the industry and enterprise of the Bavarians, have also given an additional stimulus to their commercial activity. Though an agricultural state, the export of its wrought produce and manufactures exceeds in value that of its raw produce by more than one-half; a strong proof, observes Von St. Behlen, that the mechanical industry of the country is more advanced than its agricultural. The system of duties has been placed on a liberal footing: great facilities are given to importation, and scarcely any obstacles are thrown in the way of exportations. Salt is the only article the introduction of which is wholly prohibited; and most articles imported from countries with which commercial treaties have been formed are treated on the same terms as native products, with reference to internal duties or excise imposts. In the list of duties, which for the period 1832—1837, are taken at a yearly average of 178,799*l.*, we may instance foreign wines and liqueurs, which pay 10 florins per 100 tons; silks 60 florins per cwt.; china 40 florins; vegetable oils 10 florins; coffee 15 florins; sugar 12 florins, &c. The transit trade has latterly declined, though it is still estimated to leave several hundred thousand pounds of profit in the country: the lines which it takes are, from Saxony into Switzerland; from the northern states of Germany, through Ratisbon, and thence by the Danube into Austria; from Strasburg into Saxony; from the countries on the Rhine into Italy; and from Frankfort into Austria; and the places through which it passes are Bamberg, Würzburg, Ratisbon, Augsburg, Hof, Nuremberg, Marksteft, and some minor towns. The principal articles of export are grain, about 380,000 quarters, in value about 750,000*l.*; salt; timber, of which about 48,000*l.* from the Upper Main alone; potashes, whereof 170 tons to France; fruit; liquorice-root, of which the Upper Main exports 17,000 lbs. to Austria; seed; hops; cattle, the whole export of which amounts to 10,000 heads of oxen, and 200,000 sheep and swine; fish; flax, 500 tons; yarn and coarse linens, of which the circle of the Regen supplies to the extent of 50,000*l.* in value; glass; leather; Nuremberg, Fürth, and Berchtesgaden light fabrics, beer, &c. The imports are principally wines; cotton, 450,000 lbs.; coffee, 1700 tons; sugar, 80,000 cwt.; rice, 8000 cwt.; tobacco; 10,000 cwt.; drugs, 5000 cwt.; sea-fish, 5200 cwt.; copper, 410 tons; oil, 12,000 cwt.; hides and skins, 560,000 lbs.; hemp and flax, 750 tons; silk and silk goods, 230,000*l.*; woollens, 93,000*l.*; lead, 175 tons; furs, honey, and cheese. On the whole, the value of the exports is estimated at about 3,350,000*l.*, and that of the imports at 3,250,000*l.* With respect to the former, the relative proportion of raw native produce exported is said to be about 700,000*l.*, and of manufactures, inclusive of salt, 1,150,000*l.*

History.—Our accounts of the antient Celtic Boii are few and of little importance. If tradition, however, is to be credited, they migrated from Gaul and took possession of the country between the Upper Danube and the Alps, after subduing the native inhabitants, about 600 years before the Christian æra. Shortly before this last epoch the land of the Boii fell under the Roman yoke, and a considerable portion of the present territory of Bavaria became a constituent part of the Roman empire, under the name of Vindelicia, during the following 150 years. In the second century, when the North poured down its barbarians upon the South, there was no country in Germany which felt the pressure more severely than the land of the Boii; and its inhabitants were long kept in a state of wretchedness and slavery by a constant succession of barbarous invaders, till at last, between the middle of the fifth and sixth centuries, the Heruli, Marcomanni, Thuringii, and other tribes, established themselves permanently in Noricum, which constitutes part of the Bavaria of the present day, adopted the name of Boioarii, and forced the owners of the soil to abandon their native language and customs for those of the German race. The country received the appellation of Boioaria, which has since been corrupted into Baiern and Bavaria. On the dissolution of the Roman empire, Bavaria became a vassal of the Ostrogothic empire, and, at a later date, of that of the Franks, whose yoke however was so easy that the people were permitted to elect their own dukes out of the patrician line of the Agilolfingers. These princes, whose sway lasted for more than 250 years, were so little dependent upon their foreign masters, that they exercised every prerogative of sovereignty except the right of making laws and alienating lands, which were acts that required the sanction of a body of legislators, consisting of priests, counts, judges, and elders of the people. Thassilo, the last duke of the Agilolfingian line, was, in the year 783, compelled to submit to Charlemagne after an obstinate resistance, and was condemned to death at the assembly of May in that year, but was subsequently pardoned and shut up in a monastery. From this time, which was at the close of the eighth century, the kings of the Franks and Germans governed the country by their lieutenants, who were dukes or counts taken from various families. In 1070 it passed, by imperial grant, into the possession of the Guelphs; and in 1180, upon the expulsion of Henry the Lion, Duke of Bavaria and Saxony, it was transferred by the Emperor Frederic to Otho, Count of Wittelsbach, a native prince, from whom the present king is descended. One of the most important acquisitions subsequently made was that of the earldom of the Rhenish Palatinate, with which the Emperor Frederic III. invested this family in 1216. Their dominions were afterwards divided between contending relatives at various times, until the dukedom of Bavaria was fully severed from the Upper and Rhenish Palatinates in 1329. Several other partitions ensued. In 1507 the right of primogeniture in the royal family was introduced, and finally received as the law of the land in 1573. The treaty of Westphalia not only recognised the title of the Bavarian princes to the Upper Palatinate, of which they had re-possessed themselves in 1621, but confirmed them in the electoral dignity, to which they had been raised by the emperor of Germany in 1623. Upon the extinction of the direct Wittelbach line in the person of Maximilian Joseph III. in 1777, the Elector Palatine, Charles Theodore, succeeded to the sovereignty, and ceded the districts of the Inn, containing an area of 840 square miles, to Austria; but by adding his patrimonial possessions (the Palatinate, and the duchies of Juliers and Berg) to the Bavarian territory, he increased its superficial extent to upwards of 21,000 square miles, and its population to 2,384,000. To these acquisitions the treaty of Luneville in 1801 added the lands on the left bank of the Rhine; but the re-settlement of Germany, two years afterwards, deprived Bavaria of the palatinate on the right bank, to the extent of about 4620 square miles, while it transferred to it in exchange 6720 square miles, including the dissolved bishoprics of Augsburg, Bamberg, Würzburg, and Freisingen, parts of the domains of Eichstädt and Passau, &c. The treaty of Pressburg, which raised the electorate to the rank of a kingdom in 1805, transferred certain possessions of Austria to the Bavarian crown, among which were several districts in Swabia, the Tyrol, Vorarlberg, Brixen, and Trent, as well as the cities of Augsburg, Lindau, &c. The additions thus made were about 12,180 square miles, from which, however, a deduction of about 2040 is to be made for the abandonment of the Würzburg territory.

All these changes and accessions increased the area of Bavaria, in 1806, to nearly 31,500 square miles. In the same year, Bavaria relinquished the duchy of Berg in exchange for the margraviate of Ansbach, became a member of the Rhenish Confederation, and received the city of Nuremberg, and the sovereignty over the mediatised territories of several former princes of the empire, as a compensation for the cession of some inconsiderable districts to Würtemberg. By the treaty of Vienna in 1809, the Bavarian dominions attained the greatest extent of territory which they ever possessed. One of the consequences of this treaty was, that, upon giving up the south of the Tyrol to the Italian crown, and certain domains to Würtemberg and Würzburg, Bavaria acquired nearly the whole of Salzburg, Berchtesgaden, the Austrian circle of the Inn, and part of that of the Hausruck, Baireuth, and Ratisbon, by which exchange her possessions were increased to about 35,700 square miles. In conformity with the treaty of Nied in 1812, the settlement with Austria on the 19th June, 1814, and the negotiations concluded with the same power on the 14th of April, 1816, Bavaria restored to Austria the Tyrol, Vorarlberg, the districts of the Inn and Hausruck, and those portions of Salzburg which lie to the east of the Salzach and Saale. Bavaria received in return Würzburg, and certain parts of Fulda, of the grand duchy of Hesse, of Baden, and of the territories of the old palatinate, Spires, &c. (formerly constituting portions of the French departments of Donnersberg, Saar, and the Lower Rhine.)

The following nobles have seignorial domains within the Bavarian dominions, extending over an area of about 1500 square miles:—The Princes of Eichstädt, Schwarzenberg, Fugger-Babenhausen, Leiningen-Amorbach, Löwenstein-Rosenberg, Löwenstein-Freudenberg, Ottingen-Ottingen, Ottingen-Wallerstein, Hohenlohe, Schillingsfürst, Thurn-and-Taxis, and Esterhazy, besides thirteen counts.

The first King of Bavaria was Maximilian Joseph, who assumed the royal dignity on the 1st of January, 1806, and was succeeded by his son Lewis Charles Augustus I., the present king, on the 13th of October, 1825.

(Rudhardt's *State of the Kingdom of Bavaria, from official sources*; Liechtenstern's *History and Statistics of Bavaria*; Von St. Behlen's *History, Statistics, &c., of the Kingdom of Bavaria*; Von Schlieben's *Bavaria*; Cammerer; Hassel; Stein; Hörschelmann; Malchus; Westenrieder; Eisenmann, &c.)

BAVAY, a small town in the department of Nord, in France, between Valenciennes and Maubeuge, 134 miles N.E. of Paris, through St. Quentin and Landrecies, 50° 18′ N. lat., 3° 47′ E. long.

This place, though now decayed, was once of considerable importance; and, under the name Bagacum, was the chief town of the Nervii, one of the nations of Gaul, who made an obstinate resistance to the Romans under Julius Cæsar. Its importance is testified by the fact, that the Romans brought water to it across the valley of the Sambre by means of an aqueduct, from springs in the village of Florésies, distant 10 or 11 miles. Bavay is at the junction of several Roman ways which traversed the surrounding country; these roads led respectively from Bagacum to Turnacum (Tournay), to Camaracum (Cambray), to Durocortum or Remi (Reims), and to Atuatuca or Tungri (Tongres): another road, known under the title of the *Chaussée de Brunehaut* (because repaired by Brunehaut, queen of Austrasia), afforded a communication from Bagacum to the road from Samarobriva (Amiens), to Augusta Veromanduorum (St. Quentin); and a sixth led from Bagacum, in the direction of Mons and Antwerp. In the *Encyclop. Méthodique*, a seventh road is mentioned, leading to Augusta Trevirorum, or Trèves, but D'Anville does not notice this, nor is it marked in his map; though the existence of a seventh road seems to be implied by the seven faces of the stone mentioned below. Bagacum lost its rank of capital early in the fifth century, and was succeeded by Turnacum and Camaracum. Some have supposed that it was destroyed about this time by the barbarians. The name was variously written, Bagacum in the Itinerary of Antoninus, Baganum by Ptolemy, and Basiacum, Bavacum, and Bacacum in later authorities. In the middle ages it was a mere castle. (D'Anville; *Le Grand Dictionnaire de Martinière.*)

Bavay retains scarcely any monuments of its former greatness. A stone of seven faces, in the middle of the *place* (or square) of the town, marks the convergence of the roads above mentioned. It was substituted in the third century for a more antient one of great height. Many excavations in the neighbourhood, called *troue Sarrasins*, two subterraneous passages for conveying provisions to the neighbouring fortresses, and a great number of wells from 8 to 12 feet diameter, serve to show the former extent of the place. These remains extend half a mile or more each way. The *Dictionnaire Universel de la France* speaks vaguely of inscriptions, tombs of Roman generals, and the ruins of an amphitheatre; but other authorities do not mention the last two.

The town in 1832 contained 1635 inhabitants.

BAWTRY, a market town and township which is generally considered to be in the West Riding of Yorkshire; part of the town is, however, in Nottinghamshire. Bawtry is partly in the parish of Blyth, and partly in that of Scrooby. That portion which is in Yorkshire belongs to the lower division of the wapentake of Strafforth and Tickhill; the portion which is in Nottinghamshire belongs to the wapentake of Bassetlaw. It is 153 miles N. by W. of London, 8 miles S.E. of Doncaster, and 44 miles S. by E. of York.

Bawtry is situated on a slight eminence which gradually slopes towards the river Idle, eastward of the town. This river was considered an important one previous to the improvements in inland navigation. Falling into the Trent, the Idle formerly conveyed in boats the lead of Derbyshire, the hardwares of Sheffield, and the agricultural produce of the vale of the Don, to Gainsborough, Hull, &c. A better conveyance for these goods is now found by the navigation of the Don and the Ouse. The road from London to York passes through the main street of Bawtry, in which there are some very respectable houses. The whole town is cleanly and cheerful in its appearance. The population is 1149. The chief employments of the people are those connected with agriculture: and the retail shops are chiefly supported by the neighbouring rural district. The market day is Thursday. The church, which is small, is subordinate to that of Blyth. There is a national school at Bawtry, which is supported by subscription, and which furnishes instruction to about 100 children: and there are two dissenting meeting-houses. The mansion of the Dowager Viscountess Galway is situated at the southern extremity of the town. It is adorned with pleasure grounds, which are interspersed with flower-gardens, groves and plantations. An elegant aviary on the lawn contains a choice selection of birds. (*Communication from a correspondent in Yorkshire.*)

Dr. Hunter says (*History of the Deanery of Doncaster*) that 'The position of Bawtry, on the great north road, occasions it to have the appearance of activity and business. Formerly, when the sovereign, or any member of his family, travelled with more state than at present, they were usually met at Bawtry by the sheriff of the county with a train of attendants.'

BAXTER, WILLIAM, an eminent grammarian and critic, nephew of the celebrated Richard Baxter, was born, in 1650, at Lanlugan in Shropshire. His education is stated to have been so entirely neglected in his early years, that at the age of eighteen, when he went to the school at Harrow-on-the-Hill in Middlesex, he knew not one letter in a book, nor understood one word of any language but Welsh: but he soon retrieved his lost time, and became a man of great learning. He applied chiefly to the study of antiquities and philology.

His first publication was upon Latin grammar: *De Analogiâ, sive Arte Latinæ Linguæ Commentariolus: in usum Provectioris Adolescentiæ*, 12mo. Lond. 1679. In 1695 he edited Anacreon: *Anacreontis Teii Carmina, Gr. Lat. Subjiciuntur etiam duo vetustissima Poëtriæ Sapphus elegantissima Odaria, una cum correctione Isaaci Vossii: et Theocriti Anacreonticum in mortuum Adonin*, 12mo. Lond. 1695; reprinted with improvements in 1710. In 1701, his edition of Horace made its appearance, *typis J. L.*; of which a second edition was finished by him but a few days before his death, and was published by his son John, under the title of *Q. Horatii Flacci Eclogæ, una cum scholiis perpetuis*, 8vo. Lond. 1725. This for a long time was considered the best edition of Horace which had been published in England. It bore so high a character upon the Continent as to be reprinted by Gesner at Leipzig, with additional notes, in 1752; and again at the same place in 1772 and 1778. It was again republished with additions by Zeunius in 1788; and lastly printed at Glasgow for a London bookseller in 8vo. 1797. In 1719 Baxter's *Glossarium Antiquitatum Britannicarum* appeared, dedicated to Dr. Richard Mead, accompanied with a portrait of the author, engraved by Vertue from a picture by Highmore, painted when Baxter was in his sixty-ninth year. This work is stated to have been published under the care of the Rev. Moses Williams, who also afterwards published Baxter's glossary of Roman antiquities, containing the letter A only, under the title of *Reliquiæ Baxterianæ, sive Willielmi Baxteri Opera posthuma. Præmittitur eruditi Auctoris Vitæ à seipso conscriptæ Fragmentum*, 8vo. Lond. 1726. A few copies of this work came out with the title of *Glossarium Antiquitatum Romanarum*, in 1731.

These form the whole of Baxter's printed works. He is said to have had a share in the English translation of Plutarch by several hands, published at the beginning of the last century; and proposals for printing an edition of Juvenal with his notes were circulated in 1732, but without success. Bishop Squire used some of his notes in his edition of Plutarch's treatise *de Iside et Osiride*, published at Cambridge in 1744.

Of smaller scattered pieces by Baxter, there are three letters on subjects of antiquity printed in the *Philosophical Transactions*, Nos. 306, 311, and 401; and four of his Latin letters to Dr. Geekie of Cambridge, who had been his pupil, in the first volume of the *Archæologia* of the Society of Antiquaries.

Besides Latin and Greek, Baxter is allowed to have been skilled in the British and Irish tongues, as well as in the Northern and Hebrew languages. He was in correspondence, also, with the most learned men of his time. The greater part of his life was passed in the education of youth. Nichols, in his *Literary Anecdotes*, states Baxter to have kept a boarding-school at Tottenham High Cross in Middlesex; but Dr. Robinson, in the *History of Tottenham* (8vo. Lond. 1818, p. 133), says he was the master of the free grammar-school there. He certainly was resident at Tottenham before 1697, and remained there till he was chosen master of the Mercers' School in London, which situation he held above twenty years, but resigned it before his death. He died May 31st, 1723, and was buried at Islington.

(See Nichols's *Literary Anecdotes*, vol. i. pp. 163-165, 329, 348, 349, 351, 363, vol. ii. pp. 24, 350; Chalmers's *Biogr. Dict.* vol. iv. p. 200-202; Robinson's *Hist. Tottenham*, p. 133-135.)

BAXTER, RICHARD. This eminent Nonconformist divine was born at Rowdon, a small village in Shropshire, on the 12th of November, 1615; but he resided till 1625 at Eaton Constantine, about five miles from Shrewsbury. The contiguity of his birth-place to the seat of Lord Newport was probably the means of introducing him to the notice of that nobleman. His father's little property was so much encumbered, as to prevent him from giving his son any education beyond what could be obtained from the village schoolmasters, who were neither competent teachers nor moral men. To Mr. John Owen, who kept the free grammar-school at Wroxeter, Baxter acknowledges some obligations. Though he was captain of the school, his acquirements were very inconsiderable when he left it. His ambition was to enter one of the universities to qualify himself for the ministry; but his master, Mr. Owen, probably perceiving that he required more regular instruction than he could expect to receive from a college tutor, recommended him to Mr. Richard Wickstead, chaplain to the council at Ludlow, who had an allowance from government for a divinity student. Though the defects in his previous education were but ill supplied by this arrangement (Wickstead being a negligent tutor), he had access to a good library, where he acquired a taste for those studies which he pursued with such indefatigable diligence in after life. Here he continued for eighteen months, when he returned to his father's house, and, at Lord Newport's request, supplied for a few months the place of his old master at Wroxeter grammar-school. Finding all his hopes of going to the university disappointed, he resumed his professional studies under the direction of Mr. Francis Garbett, a clergyman of some celebrity, who conducted him through a course of theology, and gave him much valuable assistance in his general reading. While he was thus engaged, he was suddenly diverted from his pursuits by a proposition from his friend, Mr. Wickstead, to try his fortune at court. The project, singular as it was, seems not to have been unpalatable either to the future puritan-divine or to his father: theology was thrown aside, and Baxter went up to Whitehall, specially introduced to Sir Henry Herbert, master of the revels, as an aspirant to royal favour. His reception was courteous and even kind. For one month he mingled in the festivities of the palace,—a period which was sufficient to convince him of the unsuitableness of such a mode of life to his tastes, his habits, and his conscience;—he then returned home, and resumed his studies with a determination never to be again diverted from them. Before he went to London, his religious impressions were deepened by the perusal of Bunny's *Resolution*, Sibbs's *Bruised Reed*, and other works of this kind. Some books which he read after his return increased that habitual seriousness which he derived from his natural disposition, as well as from the example of his father; and a protracted illness completed the preparation of his mind for the reception of those impressions of religious duty under which he acted through the remainder of his life.

While he was in this declining state of health, his anxiety to commence his ministerial labours overcame every other consideration. He applied for ordination to the bishop of Worcester, and obtained it, together with a schoolmaster's license, as he had accepted the mastership of the free grammar-school at Dudley, just then founded by his friend Mr. Foley of Stourbridge. He was then twenty-three years of age, and at this time entertained no scruples on the subject of conformity, having never examined with any nicety the grounds of subscription. His attention, however, was speedily drawn to the debatable points of the controversy; but, at first, the bitter tone of the Nonconformists gave him an unfavourable impression of their character, though he admired their fervent piety, and their energetic efforts to stem the moral corruption of the times. There was much in his own views and temperament which corresponded with theirs; but it required time and circumstances to develop the tendencies of his mind.

At the end of nine months Baxter removed from Dudley to Bridgenorth, where he acted as assistant to the clergyman. A release from his school engagements must, to such a mind as Baxter's, intent upon pastoral duties, have appeared a sufficient inducement for the change, but, in the then state of his feelings, it was of still greater moment to him to be relieved from the prospect of having to renew his subscription. Bridgenorth is the centre of a little district comprising six parishes, exempt from all episcopal jurisdiction, except a triennial visitation from the archbishop. Here he expected to perform the humble duties of a curate without obstruction, happy in the society of a colleague whose views harmonized with his own, and still happier in having a wide field for his exertions. But his hopes were soon frustrated by the 'et cetera oath,' as it was called, which enjoined all who had taken orders to swear that they would never consent to any alteration in the ceremonial or government of the church by archbishops, bishops, deans, archdeacons, &c. It does not appear that Mr. Baxter, any more than his brother clergyman at Bridgenorth, thought it necessary to observe the terms of this oath, for a complaint was laid against them for non-compliance with the ritual in various particulars.

Baxter left Bridgenorth after a residence of one year and nine months, on an invitation from a committee of the parishioners (1640) to become the officiating clergyman at the parish church in Kidderminster, the vicar having agreed, in order to settle disputes, to allow 60*l*. per annum to a curate of their own choosing. The living was afterwards sequestered, the townsmen collected the tithes, paid Baxter and Baxter's curate, and gave the vicar 40*l*. per annum. The circumstances under which Baxter settled at Kidderminster were favourable to his views; but it was not without considerable opposition from one portion of the community, whose vices he publicly reproved, that he carried some of his reforms into effect. Not satisfied with correcting the more flagrant offences of the inhabitants, he visited them at their houses, became acquainted with their families, gave them religious instruction in private, and became their friend as well as their pastor. By these means he soon wrought a complete change in the habits of the people. Though so strict a disciplinarian, his conciliatory manners won the hearts of all but a few who were irreclaimable. His preaching was acceptable to all ranks. Wherever he went, large audiences attended him; and his energy was so unremitting, notwithstanding his feeble health and constant indisposition, that he preached three or four times a week.

During the civil wars of that period Baxter held a position by which he was connected with both the opposite parties in the state, and yet was the partisan of neither. His attachment to monarchy was well known, though his adherence to the royalist party was not so certain; while the deep stream of religious feeling which ran through the conversation of the parliamentarians drew his sympathies to that side. The undisguised respect paid by him to the character of some of the puritans, made him and many others, who were sincerely attached to the crown, the objects of jealousy and persecution. A clamour was raised against them, and the rabble, whose excesses had been checked by him, were eager enough to become the trumpeters of the charge. During one of these ebullitions of party excitement, Baxter spent a few days in the parliamentary army, and was preaching within sound of the cannon when the memorable battle was fought at Edge Hill. His friends, not considering it safe for him to return to Kidderminster, he retired to Coventry, where he lived two years, preaching regularly to the parliamentary garrison and to the inhabitants. After the battle of Naseby, in 1645, he passed a night on a visit to some friends in Cromwell's army, a circumstance which led to the chaplaincy of Colonel Whalley's regiment being offered to him, which, after consulting his friends at Coventry, he accepted. In this capacity he was present at the taking of Bridgewater, the sieges of Exeter, Bristol, and Worcester, by Colonels Whalley and Rainsboro'. He lost no opportunity of moderating the temper of the champions of the commonwealth, and of restraining them within the bounds of reason; but as it was known that the check proceeded from one who was unfriendly to the ulterior objects of the party, his interference was coolly received. Among the soldiery he laboured with unceasing ardour to diffuse a better spirit, and to correct those sectarian errors, as he considered them,—anabaptism, antinomianism, and separatism inclusive—which in his view were so productive of disputes and animosity.

After his recovery from an illness, which compelled him to leave the army, we find him again at Kidderminster, exerting himself with renewed vigour to moderate conflicting opinions. The conduct of Cromwell at this crisis exceedingly perplexed that class of men of whom Baxter might be regarded as the type. For the sake of peace they yielded to an authority which they condemned as a usurpation, but nothing could purchase their approbation of the measures by which it had been attained and was supported In open conference, Baxter did not scruple to denounce Cromwell and his adherents as guilty of treason and rebellion; though he afterwards doubted if he was right in opposing him so strongly. (See Baxter's *Penitent Confessions* quoted in Orme.) The reputation of Baxter rendered his countenance to the new order of things highly desirable, and accordingly no pains were spared to procure it. At the suggestion of some of his noble friends, he once preached before the Protector, who afterwards invited him to an interview, and endeavoured to reconcile him to the political changes that had taken place; but the preacher was unconvinced by his arguments, and boldly told him that 'the honest people of the land took their antient monarchy to be a blessing, and not an evil.' The necessity of any alteration in the government did not come within the scope of his comprehension. He looked with a single eye to the diffusion of a deeper spirit of religion by means of a purified establishment, beyond which he was incapable of carrying his views or lending his sanction.

In the disputes which prevailed about this time on the subject of episcopal ordination, Baxter took the side of the Presbyterians in denying its necessity. With them, too, he agreed in matters of discipline and church government. He dissented from them in their condemnation of episcopacy as unlawful. On their great principle, viz. the sufficiency of the Scriptures to determine all points of faith and conduct, he wavered for some time, but ultimately adopted it in its full extent. Occupying, as he did, this middle ground between the Episcopalians and the Presbyterians, it was not very obvious with which of the two parties he was to be classed. Had all impositions and restraints been removed, there is every reason to suppose that he would have preferred a moderate episcopacy to any other form of church government; but the measures of the prelatical party were so grievous to the conscience, that he had no choice between sacrificing his opinions or quitting their communion.

The views maintained by Baxter, blended as they were with the principles of monarchy, made them extremely popular towards the close of Cromwell's career, when men were beginning to find that they had only exchanged one species of tyranny for another, and, as some thought, for a worse. In the sermon which Baxter preached before the parliament on the day preceding that on which they voted the return of the king, he spoke his sentiments on this subject with manly resolution, and in allusion to the political state of the country, he maintained that loyalty to their king was a thing essential to all true Protestants of every persuasion.

It was expected that on the restoration of the king moderation would have prevailed in the councils of the nation, and a conciliatory policy have been adopted with regard to religious opinions. Some indication of such a spirit appeared in the appointment of Presbyterian divines among the king's chaplains, and Baxter along with the rest. Many who had access to the king strenuously recommended conciliation, and for a time their advice prevailed against the intrigues of court influence. Among other measures a conference was appointed at the Savoy, consisting of a certain number of Episcopalian and Presbyterian divines, to devise a form of ecclesiastical government which might reconcile the differences and satisfy the scruples of the contending parties. Baxter and the Presbyterians were extremely desirous of bringing this commission to a successful issue; and Baxter himself drew up a reformed liturgy, which, with some alterations, he presented at this conference. The Presbyterians would have accepted Bishop Usher's scheme as a model, with any alterations which might be mutually agreed upon; but the bishops were secretly opposed to the arrangement, and finally frustrated it by carrying a declaration to this effect, that although all were agreed upon the ends contemplated in this commission, they disagreed about the means. Having thus defeated the object of the conference, the next step was to sequestrate the livings of those divines who had been inducted during the Protectorate. Oaths and subscriptions, which had been suspended while there was any prospect of a union of parties, were again called for by the bishops and their adherents. In accordance with this demand a law was passed in 1662, called the Act of Uniformity, so strict in its requisitions upon the debatable points of ceremonial worship, that it had the effect of banishing at once two thousand divines from the pale of the English church. Of this number was Baxter. Previous to the passing of this measure he had refused the bishopric of Hereford and other preferments offered him by Clarendon, the Chancellor, asking one favour only in lieu of them—to be allowed to return to his beloved flock at Kidderminster. The vicar, who was ejected in 1640, had been restored; and was bound by the old agreement to pay Baxter 60*l.* a year as a lecturer. But Baxter was willing to perform the pastoral duties without remuneration: all he wanted was to watch over those whom he had brought into the fold of Christ; but this request was refused.

On the 25th of May, 1662, three months before the day on which the Bartholomew Act, as the Act of Uniformity was called, from its coming into operation on St. Bartholomew's day, Baxter had preached in London his last sermon, under a regular engagement in the church; and, finding his public duties at an end, he retired in July 1663 to Acton, in Middlesex, where he employed most of his leisure in writing for the press. Some of his largest works were the fruits of this seclusion. His two most popular treatises, *The Saints' Everlasting Rest*, and *A Call to the Unconverted*, were published before he left Kidderminster, and raised his fame as a writer to a higher pitch than what he had enjoyed even as a preacher. Several attempts were made by the ejected ministers and their friends in parliament to get the rigorous restrictions against them removed, but without success. The persecutions continued with unabated violence. Even those who, like Baxter, disliked separation, and attended the worship of the church, suffered penalties for having morning and evening prayers at their own houses. In the midst of those awful calamities, the plague and the fire, which raged with such frightful devastation in two successive years, the services of the Puritan divines to the inhabitants of the metropolis were so conspicuous, that the current of opinion turned in their favour, and led to new efforts in their behalf, which ended for the time in the Indulgence granted in 1672. This drew Baxter from his retirement at Totteridge, to which place he had removed on the suppression of his ministry at Acton. He settled again in London, and preached as a lecturer in different parts of the city, but more constantly at Pinner's Hall and Fetter Lane. His preaching, though highly acceptable to his more immediate friends, was never so popular as it had been at Kidderminster. While he advocated tolerance from an intolerant communion he shone like a light in a dark place; but now that he was the apologist of conformity, while he was a sufferer for non-conformity, his conduct involved a kind of consistency too refined for public admiration. An ineffectual attempt which he made at this time to combine the Protestant interests against Papal ascendancy exposed him to various misrepresentations, to remove which he published a vindication of himself in a tract entitled *An Appeal to the Light*, but without eradicating the unfavourable impressions.

His time was now divided between writing and preaching. For a while he had a regular audience in a room over St. James's market-house, and at other places in London. But his public duties were frequently suspended by those rigorous enactments to which the Nonconformists were subjected during the last two reigns of the Stuarts.

In 1682 the officers of the law burst into his house, at a time when he laboured under severe indisposition, with a warrant to seize his person for coming within five miles of a corporation, and would have hurried him before a justice of the peace in this condition, had they not been met by his physician, whose interference probably saved his life as well as obtained his pardon. Two years later, while his health was still in a precarious state from a chronic disease, he was again harassed by distraints and penal proceedings. Still later it was his misfortune to be one of the unhappy victims of Jefferies. He was apprehended on a lord chief justice's warrant, on a charge of sedition and being hostile to episcopacy. The charge was founded on some passages in his *Paraphrase of the New Testament*. On the trial, Jefferies, not content with using language the most opprobrious to the prisoner and his counsel, acted the part of prosecutor as well as judge, and scrupled not to gain his ends by silencing the accused, by insulting his counsel, by refusing to hear his witnesses, and by triumphing over his sentence. He said upon the bench, 'he was sorry that the Act of Indemnity disabled him from hanging him.' His punishment was a fine of 500 marks, to lie in prison till it was paid, and to be bound to his good behaviour for seven years. For the non-payment of this heavy penalty he was committed to the King's Bench prison, where he lay until the 26th of November in the following year (1686), having been confined for nearly eighteen months. His pardon was obtained by the mediation of Lord Powis, and the fine was remitted. The solitude of his prison was enlivened on this, as on former occasions, by the affectionate attentions of his wife. Baxter himself lived to see that favourable change in reference to religious toleration which commenced at the Revolution of 1688. He died on the 8th of December, 1691, and was buried in Christ Church.

The literary career of Baxter is not the least extraordinary part of his history. He published a body of practical and polemical divinity with a rapidity almost unequalled; the excellence of some of his practical writings secured them an unexampled popularity, and thus laid the foundation of a new theological system which still retains his name. The catalogue of his works is not easily described. It contains nearly 168 distinct publications: (see list in Orme's *Life*, prefixed to the edition of his works, London, 1830.) Many of these are only known to his admirers, but others are more read than any other productions of a religious character. His fame chiefly rests on his two most popular works, and on his *Methodus Theologiæ* and *Catholic Theology*, in which his peculiar views are embodied. Several of his learned contemporaries have recorded their testimony to the character of his writings. Sir Matthew Hale was a constant reader of them, and honoured Baxter with his friendship. Bishop Wilkins praised him in the phrase that

Johnson afterwards applied to Goldsmith: 'he has cultivated every subject which he has handled;' and Dr. Isaac Barrow said, that 'his practical writings were never mended, and his controversial ones seldom confuted.' Baxter left behind him a *Narrative of the most Memorable Passages of his Life and Times*, which was published in a folio volume after his death (1696) by his intimate friend Mr. Matthew Sylvester, under the title *Reliquiæ Baxterianæ*. It is here that we find that review of his religious opinions written in the latter part of his life, which Coleridge speaks of as one of the most remarkable pieces of writing that have come down to us. (See Coleridge's *Biographia Literaria.*) Calamy's *Life of Baxter* is a kind of abridgment of this work, which abounds in notices of the men, the transactions, the habits, and the opinions of the stirring period in which he lived.

There are a few poems by Baxter, not long ago published in a small volume. His *World of Spirits* has been lately reprinted.

BAXTERIANS, a name which is applied to those who adopt the theological system of Richard Baxter. The name is now almost extinct; but Baxterianism is still the resting place of many who do not approve of the extremes of Calvinism. The Baxterians hardly ever attained the rank of a separate denomination, even when they were most numerous; and they are now completely scattered among different communions. Their writings are most popular among the orthodox dissenters.

Baxterianism occupies a sort of middle place between Arminianism and Calvinism. It is not correct to say that it reconciles the two schemes. It only connects them by showing that portions from each may be made to harmonize with each other. Hence it would be more properly described as a system of theology framed out of the systems of Calvin and Arminius, and becoming itself the point of union between them. Its chief merit is supposed to consist in the amalgamation of the Arminian doctrine of free grace with the Calvinistic doctrine of election. The Baxterians profess to believe that a certain number, determined upon in the divine counsels, are elected to salvation without respect to their good works. To this extent they receive the doctrine of effectual calling. But to make their view of the operation and comprehensiveness of divine favour complete, they contend that all to whom the gospel is preached are placed in a condition for securing their own salvation. Hence they think with Calvin that Christ died in a special manner for the elect; and, in a more general sense, for all others who come within the light of the gospel. The Calvinistic tenet of reprobation forms no part of their system.

The grounds on which Baxter contended that the death of Christ put all men in a state of salvation are briefly these:—1st, Because Christ assumed the human nature and bore the sins of the human race; 2dly, Because pardon and life were offered to all mankind on condition of acceptance,—'Whosoever believeth shall be saved;' and, 3dly, Because it is not to the elect alone, but to all men, that the benefits of the gospel are proclaimed.

The arguments by which the learned divines of this school prove the elect to have a superior interest in the death of Christ over the non-elect, are deeply tinctured with that metaphysical subtlety of which Bishop Burnet complains as the great blemish of Baxter's writings. The hypothesis, in a few words, may be thus stated: that Christ has made *a conditional gift of the benefits accruing from his death to all mankind; but to the elect the gift is absolute and irreversible*; from which he draws the inference that, notwithstanding the *positive* possession of these advantages was decreed to the few, yet conditionally the benefit was *extended to all.*

The Baxterians are greatly opposed to Antinomianism. Faith without works they hold to be an unscriptural and dangerous tenet. Several of the minor doctrines of Calvinism are adopted in a modified sense, among which may be mentioned justification and the perseverance of the saints. They advocate the certainty of perseverance, but incline to the opinion that it may be lost by too weak a degree of saving grace.

In all the Baxterian deviations from the system of Calvin there is a decided leaning to more comprehensive views. Baxter was himself opposed to the narrowing of the terms of salvation, and designed to remove every appearance of exclusiveness in the operation of divine favour from the system which he took such pains to adjust and promulgate. The most eminent divines who have embraced these opinions since the death of their author are Watts and Doddridge—men who have both illustrated in their works and lives the candid and amiable spirit of the school to which they belonged.

(Calamy's *Abridgment of Mr. Baxter's History of his Life and Times*, 2nd edit. 1713. A second volume contains an account of other ministers deprived or silenced by the Act of 1662. In 1727 two volumes of *Continuation* were published. Baxter's *Catholic Theology*; Buck's *Theological Dictionary.*)

BAY (*bahia*, Portuguese, Spanish; *baia*, Italian; *baie*, French; *meerbusen*, German), is a portion of the sea, of such a form that it is wider at the part nearest the open sea, and narrower the farther it advances into the main land. According to this definition the term is rightly applied to the Bay of Biscay, the Bay of Bengal, Chesapeak Bay, and Botany Bay; but sometimes it is used where the term *gulf* would seem to be more appropriate. This latter term properly implies an arm of the sea, which, without any or with only little diminution in breadth, enters very deeply into the main land, as the Gulf of Bothnia or the Gulf of Finland. Smaller portions of the sea of this description are called, in Scotland, *firths*, and in Norway, where they are very numerous, *fiords*, in Iceland *fiördurs*. According to this definition we should not say Baffin's Bay, but Baffin's Gulf. To introduce greater precision into geography, it would still be necessary to distinguish both bays and gulfs from *close seas*, by which we understand extensive parts of the sea, enclosed on every side with land, and united with the ocean only by straits or narrow arms, like the Mediterranean or the Baltic Sea and the Red Sea. But here, too, the common practice is not exact. We say Hudson's Bay where we should use the term Hudson's Sea, and the same observation holds good for the Gulf of Mexico, which as well deserves the name of sea as the Caribbean Sea. Sometimes also close seas have received the name of gulfs, as the Persian Gulf.

BAY SALT. [See Salt.]

BAY TREE. [See Laurus.]

BAYADEER (said to be a corruption of *Bailadeira*, a Portuguese word, which signifies a dancing woman), a name given to the regularly bred dancing girls in India, who are also the regular prostitutes. Certain women make it their business to select the handsomest girls they can find among the children of the lowest class of people; and, after having secured their beauty from the ravages of the small-pox by inoculation, carefully instruct them in dancing, singing, and the acting of small comedies, with the little arts and manners which form the accomplished bayadeer. The system of training commences at the age of seven or eight years, and continues two or three years. From the end of this training to the age of seventeen is the professional life of a bayadeer. Towards its termination, their personal attractions being considered on the wane, they find it expedient to transfer them to the more contracted sphere of the temples. Some are devoted, under a vow of the parents, to the service of the temples from their birth. They are brought up in the usual accomplishments, and the wages of their exertions and their infamy enter the treasury of the temple with which they are connected.

These girls are generally introduced to any party that requires their attendance, escorted by a band of musicians. *A native band consists of instruments resembling guitars, and others like clarionets, with cymbals and kettle-drums*, which altogether produce a very wild, but not an unpleasing, and a somewhat melancholy harmony. The women dance and sing; and when one is desired to dance, she calls for the ornaments of her feet, which consist of silver chains, which she fastens on her ankles. Then, rising from the ground, she arranges her dress, which generally consists of about a hundred yards of light muslin, which terminates in innumerable folds at about the swell of the leg: and of a shawl which covers part of the head, comes over the shoulders, and falls in folds over the petticoat. The hair is seldom ornamented, but is parted in the middle, and kept close down by the aid of the cocoa-nut, which improves its jet and gloss, but communicates an unpleasant odour. Behind the ears a bunch of pearls is worn like a cluster of grapes, and a ring is suspended from one of the nostrils, through which it is inserted. The ornaments, however, are sometimes more and sometimes less numerous and costly than this.

The dancing consists in a certain methodical kicking of the right foot, which causes the chains on the ankles to jingle retreating; sometimes with the hands up, and twisting them about; at others, enveloping her head completely in the shawl. The movements of the bayadeer are sometimes so slow in this performance, that an inexperienced spectator might suppose her about to fall asleep, when, in correspondence with a change in the music, she becomes full of life, and exhibits a rapid and exhausting succession of violent action. She takes up her robe and folds it into various shapes, then she lets it go, so that while she spins round like a top, it forms a circle, bearing some resemblance to the tail of a peacock. It is perfectly amazing for what a length of time practice enables them to maintain this circular motion. This part of the performance is sometimes dispensed with. In different parts of the country these dances vary in the proprieties of dress and attitude. In some parts they are highly indecent, but this is not always, or perhaps generally, the case. The songs of the bayadeers, however, commonly express, in very warm language, the sentiments of amorous passion, as addressed by the female to her lover. Such songs afford a striking contrast to those of the Persians, who, according to Sir William Ouseley, 'never suffer their females to make, either in prose or verse, any advances or declarations of love.'

(*Description, &c., of the People of India* by the Abbé Dubois; Morier's *Second Journey; Heber's Narrative of a Journey, &c.;* Ouseley's *Travels in various Countries of the East.*)

BAYAMO, in Cuba. [See SALVADOR, S.]

BAYAN KHARA MOUNTAINS is the Mongol name of a very extensive range in Eastern Asia, in a corner of the globe which has never been visited by Europeans, and which, therefore, is only known to us by the accounts of the Chinese geographers. According to them a vast mountain-knot is situated nearly in the centre of the high table-land of Eastern Asia to the west of the lake Khoo-khoo-nor, between 35° and 38° N. lat., and about 96° and 100° E. long. This mountain-knot, called Kulkun, is considered as the eastern portion of the Kuen-luen Mountains, which traverse the high table-land from west to east about the thirty-fourth parallel. From this mountain-knot high ranges seem to proceed towards all the points of the compass, three of which extend to the east in the direction of the principal chain. The most northern, called Khi-lian Shan, separates the basin of the lake of Khoo-khoo-nor from the great desert of the Gobi. The middle chain, and as it seems the highest of the three, called Siue Shan (Snow Mountains), fills up with its numerous high and steep summits the whole region between the lake of Khoo-khoo-nor and the great river Hoango. The most southern of the three, the Bayan Khara Mountains, first runs towards the south, and the waters descending from its eastern declivities give rise to the river Hoango. Soon afterwards the range declines towards east-south-east and separates in this direction the upper courses of the two great rivers Hoango and Yan-tse-kiang, until branching off in numerous ramifications, it obliges the Yan-tse-kiang to take a southern and the Hoango a northern course. Thus these rivers, which to the west of the 100th meridian run hardly more than fifty miles from one another, attain under the 103rd a distance of more than ten degrees of latitude, which they keep to about the 112th meridian, where they again approach one another within about four degrees, or about 270 miles. All the numerous mountain chains which occupy the eastern parts of Tibet, and that portion of China which extends between the Hoango and Yan-tse-kiang are connected with the Bayan Khara Mountains, and ought to be considered as ramifications of this mass. The most remarkable is that which, including the basin of the Hoango on the south, divides Sifan from the Chinese province Kan-su: there it is called by the Chinese Min-shan. Its eastern prolongation, which divides the province Sut-shuan from those of Kan-su and Shen-si, bears the name of Peling (Northern range), and, forming the watershed between the two great rivers, it advances into the great plain of Northern China, where the last offsets terminate at a distance of about 100 miles from the Whang Hay or Yellow Sea.

We know nothing respecting the mineral riches of the Bayan Khara Mountains from the Chinese geographers; but we are informed that those ranges which lie to the west of the 103rd meridian in many places rise above the line of eternal snow, and that even glaciers are frequent among them. They are, however, rarely visited, on account of their

BAYARD, PIERRE DE TERRAIL, known by the honourable appellation of the 'Good Knight, without fear and without reproach' (*le bon Chevalier, sans peur et sans reproche*), was born, in the year 1475, at the Château de Bayard in Dauphiné. His family were for generations the feudal lords of the territory whence they took their name, and were distinguished for their military prowess during the wars of the English in France. Almost all his immediate ancestors died on the field of battle: his great-great-grandfather fell at Poictiers; his great-grandfather at Cressy; his grandfather at Montchery; and his father also received many wounds in the wars of Louis XI. With a view to being educated for the profession of arms, he was placed, when thirteen years old, in the household of the Duke of Savoy as page, in which capacity he continued for five years, perfecting himself in the various accomplishments then considered essential to the character of a true knight. Bayard, when only eighteen years of age, carried away the prize in a tournament against one of the most experienced knights in France. When he had completed his eighteenth year he entered into actual service.

In the latter end of the year 1494, Bayard accompanied Charles VIII. in his expedition against Naples, and greatly distinguished himself at the battle of Fornovo, fought on the 6th of July in the next year. He had two horses killed under him in this engagement, and he performed numerous feats of that romantic valour which have perpetuated his name as one of the last and best representatives of the days of chivalry. Bayard served also in the Italian wars of Louis XII., which began in 1499. On one occasion he kept a bridge over the Garigliano single-handed against 200 Spaniards, long enough to enable the main-body of the French to make good their retreat.

Bayard was also present at the famous 'battle of the Spurs,' fought at Guingette near Terouenne in Picardy, on the 16th of August, 1513. Either from panic or mistaken orders, the French gendarmerie, when retreating from the English force, commanded in person by the then youthful Henry VIII., fled before the English cavalry in disgraceful confusion. The contest, in fact, was one of mere speed between the pursuers and the pursued, and hence the humorous epithet, applied by the vanquished themselves, of the 'battle of the Spurs.' But for the presence of mind and daring valour of Bayard, the whole French army would have shared in the disgrace of the gendarmerie. He retired with fourteen men-at-arms, often turning on his pursuers, till he reached a place where only two could pass in front. 'We halt here,' said he, 'the enemy will be an hour gaining this post. Go and tell them so at the camp.' He was obeyed, and succeeded in gaining time for the French army to re-assemble itself, but was himself taken prisoner. Henry's reception of the knight was much more courteous than that of the Emperor Maximilian, who was present, being, with his troops, in the pay of the English king. The emperor taunted him with the remark that he thought Bayard was one who never fled. 'Sire, if I had fled I should not have been here,' was the prompt answer.

Bayard attended Francis I., then in the pride of youth, and ambitious of the honours of chivalry, in the war undertaken to recover Milan and the other Italian conquests of his predecessor. The bloody battle of Marignano, Sept. 13, 1515, which lasted two days, was fought with a fierceness that made Trivulzio, the French commander, who had been in eighteen pitched battles, exclaim that 'all other fights compared with this were but children's sport: this is the war of giants.' Bayard displayed his usual romantic daring and prowess. When the battle was won, Francis, who had fought by his side, and who had witnessed his extraordinary valour, begged and received the honour of knighthood at his hands upon the field.

The next great service which Bayard rendered his country was the obstinate and successful defence of Mezières, on the Netherlands frontier of France, in 1522, against the Count of Nassau, with a force of 35,000 men, aided by a strong artillery. The garrison consisted of only 1000 men, but such was the fame of Bayard, that many of the young nobility of France considered it the highest honour to be engaged under him in the defence of this frontier town.

In 1524 Bayard had a command in the force which Francis I. sent to Italy to act against the army of the Emperor Charles, directed by the celebrated Duke of Bourbon, The command-in-chief was intrusted to Bonnivet, whose only qualification was personal courage. After various movements and partial successes, Bonnivet was compelled to abandon his strong entrenchments at Biagrasso, and move nearer to the Alps, in expectation of reinforcements from Switzerland. He was pursued by the imperial forces, who attacked his rear with great fury just as he had reached the banks of the Sesia. Bonnivet, while displaying much valour in rallying his troops, was wounded in the arm by a ball from an arquebuss. He sent to Bayard immediately, telling him that the fate of the army was in his hands. Bayard, who had in vain throughout the campaign remonstrated with Bonnivet on the course he was pursuing, replied, 'It is now too late, but I commend my soul to my God; my life belongs to my country.' He then put himself at the head of the men-at-arms, and kept the main-body of the enemy occupied long enough to enable the rest of the French forces to make good their retreat. While thus engaged he received a mortal wound from a ball, and fell from his horse. He was pressed to withdraw from the field, but his answer was that he had never turned his back upon an enemy. He ordered himself to be placed with his back against a tree, and his face to the enemy. In this situation he was found by Bourbon, who expressed his regret at seeing him in this condition. 'Pity not me,' said the dying man, 'I die as a man of honour ought, in the discharge of my duty; they, indeed, are objects of pity who fight against their king, their country, and their oath.' The Marquis of Pescara, commander of the Spanish troops, passing soon after, manifested (we quote from Robertson's *Charles V.*, book iii.) his admiration of Bayard's virtues, as well as his sorrow for his fate, with the generosity of a gallant enemy; and, finding that he could not be removed with safety from that spot, ordered a tent to be pitched there, and appointed proper persons to attend him. He died, notwithstanding their care, as his ancestors for several generations had done, on the field of battle. Pescara ordered his body to be embalmed and sent to his relations; and such was the respect paid to his memory that the Duke of Savoy commanded it to be received with royal honours in all the cities of his dominions. In Dauphiné, Bayard's native country, the people of all ranks came out in a solemn procession to meet it.

(See *Mémoires du Chevalier de Bayard, &c.*, with notes by Theodore Godefroy, and the contemporary histories; also Brantome's works, and the *Mémoires de Bellay*.)

BAYAZID I., surnamed **ILDIRIM**, or 'the Lightning,' in allusion to the rapidity of his military achievements, was the son of the sultan of the Osmans, Murad I. He was born A. Heg. 748 (A. D. 1347), and came to the throne in A. Heg. 792 (A. D. 1389), after his father had been killed in an engagement with the Servians near Cossowa. The Osman dominions at this epoch extended from the Danube to the Euphrates; and Bayazid at the head of his army was almost incessantly moving from one extremity of his empire to the other, to reduce his Mohammedan neighbours to obedience, or to add to his possessions by conquests from the Christian powers of Europe. Brussa and Adrianople were respectively the Asiatic and European capitals of his dominions, and the erection of a magnificent mosque in each of them is one of the earliest acts of his reign that we find recorded. This seemingly pious act forms a strong contrast with his behaviour to Yacub his only brother, whom he put to death almost immediately on ascending the throne, from no other motive than an apprehension that the example of other Eastern princes might encourage him to rebel, and dispute Bayazid's right to the throne.

The conquests of the Osmans had, in the beginning of the eighth century of the Mohammedan æra (the fourteenth after Christ), put an end to the Seljukide dominion in western Asia, and on its ruins several small dynasties had sprung up, the principal of which were that of Sinope and Castemuni on the northern coast of Asia Minor, and those of Aidin, Zarukhan, and Kermiyan. These dynasties Bayazid determined to destroy, and to embody their territories in his empire. Within the first year after his ascending the throne he had conquered Zarukhan, Aidin, and part of the northern coast of Anatolia: nor did his previous marriage (in A. D. 1381) with a daughter of the prince of Kermiyan prevent him from leading an expedition against his father-in-law, whom he took prisoner and deprived of his territory. Bayazid had to encounter greater difficulties in subduing the principality of Caramania. Timurtash, his general, had conquered part of the country, when Alâ-eddîn the reigning sovereign, defeated him in a battle and took him prisoner. When this happened, Bayazid was on the banks of the Danube engaged in a war with Stephan, the prince of Moldavia, who had been instigated by Kœturum Bayazid (i. e. 'Bayazid the Lame'), a Musulman chief on the borders of the Black Sea, to invade Wallachia and Bessarabia. On receiving the news of Timurtash's defeat, Bayazid hastened from Europe into Asia, and within a very short time subdued the whole of Caramania, besides which he now added to his empire the towns of Konia, Akshehr, Akseraï, Larenda, Siwas (Sebaste), Tokat, and Kaisariyah. Soon after he took away the dominions of Kœturum Bayazid on the Black Sea; and when Kœturum died, Bayazid allowed his son, Isfendiar, to retain possession only of Sinope.

The year 1391 is remarkable also for the capture of Philadelphia, or Alashehr (i. e. 'The Variegated City'), the last Greek town in Asia Minor that continued faithful to the Byzantine empire. Its Greek commander made a vigorous resistance to the besieging forces of Bayazid, and rejected his invitation to surrender the fortress: while the Emperor Joannes and his son Manuel, then the confederates of the sultan, were actually assisting in the siege.

In 1393 Bayazid undertook another expedition into Europe, in which he took possession of the towns of Saloniki and Yenishehr (Larissa), and for the first time besieged Constantinople. He compelled the emperor to give up his plan of adding to the strength of the capital by new fortifications, and to assign a separate suburb to the Turks with a mosque and a *kadhi*, or judge, of their own. Bayazid at the same time built the fort of Guzelje, or Anatoli-hissar, on the eastern side of the Bosporus, which secured to him the command of that channel.

In 1396 Bayazid gained an important victory near Nicopolis on the Danube over an army of a hundred thousand Christians, including many of the bravest knights of France and Germany, who had assembled under the standard of Sigismond, the king of Hungary, to check the farther progress of the Mohammedan power in Europe. The greater part of the Christian forces were slain or driven into the Danube. Sigismond escaped to Constantinople. Sixty-thousand Turks are stated to have fallen in the same battle; and when Bayazid became aware of the extent of his loss, he gave orders to put to death all the prisoners with the exception of twenty-four nobles, who were subsequently ransomed. This great victory was soon followed by further conquests in Greece. The Morea was taken, and in 1397 (according to the oriental authorities quoted by M. von Hammer, *Gesch. des Osman-Reichs*, i. 252) Athens fell into the power of the Osmans.

The dominions of Bayazid and those of the Tartar conqueror Timur now touched each other in the neighbourhood of Erzerum and on the banks of the Euphrates. With doubtful limits between the two empires, which had never been defined by treaty, a cause for war between two jealous sovereigns could not long be wanting. Timur had taken possession of Siwas (the antient Sebaste), on the Halys, then one of the strongest and most flourishing cities of Western Asia, and had treated its inhabitants with great cruelty. Bayazid was then engaged in his European dominions, which prevented him from resenting this violation of his territory. About the same time two Musulman princes, Ahmed Jelair and Kara Yussuf, whom Timur had deprived of their possessions, fled for protection first to Seifeddin Barkuk, the Sultan of Egypt, and subsequently to Bayazid, who received them with kindness, and married his son, Mustafa Chelebi, to a sister of Ahmed Jelair. Timur sent two embassies for the purpose of demanding the surrender of the princes; but Bayazid refused to comply, and, instigated by the advice of the princes, took possession of Erzinjan, a town situated on the Euphrates within the dominions of Timur. Timur, who now determined to commence an open war against Bayazid, begun the campaign by taking Haleb, Antakia, and other Syrian towns that were subject to the Osmans. He was at Siwas when he received information of the approach of Bayazid from the west. The two sovereigns at the head of their armies met in the plains of Angora, the capital of the antient Galatia. A decisive battle took place (according to M. von Hammer's calculations on the 19th of Zulhaj, A. Heg. 804, i. e. the 20th of July, A.D. 1401), in which the Osmans were totally defeated, and Bayazid became a prisoner in the hands of Timur. The conqueror, according to his Persian biographer, Sherif-eddin, received Bayazid with great kindness, assigned him suitable accommodations, and continued to treat him with distinction till he died, A. Heg. 806 (A.D. 1403). D'Herbelot (*Bibliothèque Orient.*, art. *Timour*, p. 876, edit. 1776) and M. Von Hammer express themselves satisfied with this account, and reject the common report which would charge Timur with great cruelty towards his prisoner. But Sir William Jones (*Works*, vol. v. p. 547) draws our attention to a passage in another contemporary historian, Ebn Arabshah's life of Timur, which had been overlooked by D'Herbelot, and in which the Arabian author expressly affirms 'that Timur did inclose his captive, Ilderim Bayazid, in a cage of iron, in order to retaliate the insult offered to the Persians by a sovereign of Lower Asia, who had treated Shapor, king of Persia, in the same manner; that he intended to carry him in this confinement into Tartary, but that the miserable prince died in Syria, at a place called Akshehr.' (See Ahmedis Arabsiadæ, *Vita Timuri*, ed. Manger, tom. ii. pp. 225, 276, &c.)

We will not venture to decide a question on which there is such conflicting evidence; but we must notice a curious passage of Busbequius, who visited Constantinople as ambassador from the German emperor about the middle of the sixteenth century, as it seems to have escaped the notice of M. von Hammer. The passage is to the following effect: that Bayazid, after his defeat, became a prisoner in the hands of Timur, who treated him with great cruelty; that his wife, who was also made a prisoner, was grossly insulted before his face; and that from this time till the age of Suleiman I., who reigned from A.D. 1520 to 1566, the Osman sultans have never married, for fear that the reverses of fortune might expose them to similar insults. (*Aug. Gislenii Busbequii Legationis Turcicæ Epistola Prima*, pp. 26, 27, ed. Lond. 1660, 16mo.)

Bayazid was succeeded upon the throne of the Osman empire by his son Mohammed I. (Joseph von Hammer, *Geschichte des Osmanischen Reichs*, vol. i. p. 216, &c.; Sherif-eddin's *Life of Timur*, translated by P. De La Croix.)

BAYAZID II., the eldest son of the Osman sultan, Mohammed II., was born A.D. 1447, and in 1481 succeeded his father on the throne of the Osman empire, which he occupied till 1512. Bayazid was governor of Amasia when his father died (3rd of May, 1481). Upon receiving the news of his demise he hastened to Constantinople, but had to establish his claims to the throne by a contest with his brother Jem—called Zizim or Zizymus, by Caoursin and other contemporary European writers. Jem was defeated in a battle at Yenishehr near Brussa, 20th of June, 1481, and fled to Egypt, where he was kindly received by the Sultan Kaitbai. In the following year Jem was induced, by the representations of his friends in Syria, to venture upon another campaign against his brother; but he was again unsuccessful, and took refuge at Rhodes. Here D'Aubusson, the grandmaster of the Knights of St. John, received him with marked attention, but afterwards sent him to France, where he was kept in close confinement till 1488. Towards the end of that year the king of France, Charles VIII., surrendered him into the hands of Pope Alexander VI., by whom he was poisoned (Feb. 24, 1495).

A considerable part of Bayazid's reign was spent in war. When Mohammed II. died, the Osman empire was engaged in a conflict with Venice. Bayazid found it necessary in 1482 to conclude a peace which secured considerable advantages to the republic. In the same year, Keduk Ahmed Pasha, a military commander to whom the empire owed many important victories, was murdered by Bayazid's command.

In 1485 Bayazid declared war against Kaitbai, the Mamluk sultan of Egypt. Karagös-Pasha, the commander of the Osman army, suffered two signal defeats, and in 1491 a peace was negotiated upon terms by no means advantageous or creditable to the Osman arms. In the same year the fortresses of Depedelen and Bayendera in Albania were taken by the Osmans. Bayazid was himself engaged in this expedition, and near Depedelen had a narrow escape from an assassin who had approached him in the disguise of a monk. This incident, M. von Hammer observes, gave rise to the rule ever since most strictly observed at the Osman court, that no one bearing any weapon is admitted into the presence of the sultan.

The year 1490 is remarkable in Turkish history for the first treaty concluded between the Osman government and that of Poland; and in 1495 we find recorded the first diplomatic relations between the sultan and the czar of Moscow.

In 1499 another war broke out between the Osman empire and Venice. A Venetian fleet was defeated in a battle near the island of Sapienza, July 28, 1499; and Lepanto (Naupactos), Modon, Coron, and Navarino, were besieged and taken by the Osmans, while Iskandar Pasha, with a land army, invaded and laid waste the country along the river Tagliamento in the north of Italy. A combined Venetian and Spanish fleet took possession of Ægina and Cephalonia, and captured twenty Turkish galleys. By the treaty of peace, which was concluded in December, 1502, the Venetians were obliged to leave the island of Santa Maura in the hands of the Turks, but they kept possession of Cephalonia, and obtained the privilege of appointing a consul at Constantinople, and of trading in the Black Sea.

Bayazid was induced to yield a peace upon such conditions by the rapid rise of the Persian power on the eastern frontier of his dominions, under Shah Ismail, the founder of the Safawi (commonly called the Sofi) dynasty. Shah Ismail had encroached upon the Osman territory near Tokat, and when forced to retreat by the governor of the province, had taken possession of Merash. About the same time, Korkud, Bayazid's eldest son, disgusted at the contemptuous treatment which he experienced from Ali Pasha, the grand vizir, quitted the empire and went to Egypt. Ahmed, though younger than Korkud, had been appointed by Bayazid his successor on the throne. Selim, a younger brother of Ahmed, dissatisfied with the preference thus given to the latter, revolted against his father (1511), at the same time that an alarming rebellion, headed by Kuli Shah, also named Sheitan Kuli, broke out in Asia Minor. Kuli Shah was soon obliged to retire, and his adherents became dispersed; but the conflict between the princes, Korkud, Selim, and Ahmed, continued, till at last Selim prevailed. Bayazid was obliged to resign the government in his favour, and Selim, supported by the Janissaries, and the great mass of the people of Constantinople, ascended the throne April 25, 1512. Bayazid quitted the capital, in order to spend the remainder of his life in peaceful retirement at Demitoka, his birth-place; but he died on his journey thither at Aya, near Hassa, May 26, 1512.

(Joseph von Hammer's *Geschichte des Osmanischen Reichs*, vol. ii. p. 250, &c.)

BAYAZID, a town of Turkish Armenia, situated at the base of Mount Ararat, in 39° 24′ N. lat., 44° 20′ E. long.; 50 miles S.S.W. from Erivan, and about 180 miles E. of Erzerum. It is governed by a pasha of two tails, whose authority extends over a surrounding district of considerable extent, but its limits are not distinctly defined. Kinneir assigns to the place a population of 30,000, of whom the great majority are Turks; but Stocqueler says that the population is estimated at 3000, the greatest proportion of whom are Armenians; and French writers estimate the population at 10,000. Whatever be the number, the majority are, undoubtedly, Armenians; and our own information inclines us to consider the French estimate of the population to be nearest the mark.

The town is built on a declivity, the summit of which is said by the inhabitants to be strongly fortified; but they do not like to allow the fortifications to be inspected. The city itself is also surrounded by walls and a rampart. Bayazid has a very uninteresting appearance. The houses are small, and, for the most part, inconveniently built. Were it not for the pasha's palace, which is covered with white plaster and rises high above the rest of the town, it would be difficult to distinguish it from the craggy elevation on the side of which it is built, for the houses are composed of the same material as the rocks, and the soil affords not an inch of verdure. There are three mosques, two Christian churches, and a monastery of considerable celebrity in Armenia. Little business is carried on at Bayazid. The inhabitants have no encouragement to attempt manufactures, because Russian articles of a much better quality than they can make, and at a much cheaper rate, are obtained from Erivan. (See Kinneir's *Geographical Memoir of the Persian Empire*; Morier's *Journey through Persia, Armenia, and Asia Minor*; Stocqueler's *Pilgrimage through Khuzistan and Persia*.)

BAYER, JOHN, was born at the town of Rhain (*Rhaina Biorum*; it is called *Rhain* by Kästner, and appears to be Rain, which is not far from the confluence of the Lech and the Danube), in Bavaria, in 1572. He followed the profession of an advocate at Augsburg, where he died in 1625, having lived a bachelor fifty-three years. He was an astronomer, and a diligent inquirer into antiquity. The preceding particulars are (or were) stated in his epitaph, in the church of St. Dominic at Augsburg. (See Schiller, *Cœlum stellatum Christianum*, Aug. Vind. 1627; or Kästner, *Gesch. der Math.* vol. iv. p. 94.) Of his life we can find no account, except in the *Biographie Universelle*, which states that he was a minister of the gospel, whose zeal got him into trouble, but who was withal so good an astronomer, that he was ennobled by the Emperor Leopold in 1669. With whom he has been confounded in this strange mistake we cannot tell, but he himself, in the preface to his charts, justifies himself for employing his time in mathematics, he being a lawyer. There was a John Bayer who published various works between 1662 and 1667, one of which, *Ostium vel Atrium Naturæ, &c.*, might have contained astronomy. Perhaps this one may have been confounded with John Bayer of Augsburg.

Bayer has immortalized his name, as Delambre remarks, at a very cheap rate. He published charts of the stars in 1603, in which, for the first time, he distinguished one from another by affixing letters. When Flamsteed and others adopted this practice, which has since become universal, the letters of Bayer were followed, which has made his maps valuable: otherwise they are not so good as those of Hevelius.

The first edition of Bayer's maps was published at Augsburg in September, 1603, with the following title: Johannis Baieri Rhainani, J. C. *Uranometria, omnium asterismorum continens schemata novâ methodo delineata, æreis laminis expressa.* The title given by Lalande (*Bibliogr. Astr.*) is incorrect. He had obtained the constellations visible in the northern hemisphere from the catalogue of Tycho Brahé, and those about the south pole from Americus Vesputius and others. (Kepler, *Tab. Rudolph.* cited by Kästner.) It is not known whether he observed himself, but Riccioli, in the words 'suis vigiliis astronomicis aucta et emendata,' implies that he did; and Bartschius (*Planisph. in Pref. ad Lect.*) affirms that Bayer was not in possession of the more recent observations of Tycho Brahé, and that his places were erroneous in consequence. There are fifty-one maps by Bayer, namely, two of the hemispheres, one of nine constellations about the south pole, and forty-eight of single constellations. The Greek letters are employed to denote the stars, and where the Greek alphabet ends, the Roman small letters are used.

The following is the list of Bayer's constellations, after each of which is placed the letter with which the reckoning ends; so that by looking at the numbering of the two alphabets annexed, the number of stars reckoned by him may be seen. In applying the letters he seems to have arranged the stars in order of brilliancy: thus α is the largest star in a constellation, that is, the largest in the opinion of Bayer, observing with the naked eye, in and about 1600. Bayer's names and spellings are retained. The constellations are all in Ptolemy.

1. α
2. β
3. γ
4. δ
5. ε
6. ζ
7. η
8. θ
9. ι
10. κ
11. λ
12. μ
13. ν
14. ξ
15. ο
16. π
17. ρ
18. σ
19. τ
20. υ
21. φ
22. χ
23. ψ
24. ω
25. a
26. b
27. c
28. d
29. e
30. f
31. g
32. h
33. i
34. k
35. l
36. m
37. n
38. o
39. p
40. q
41. r
42. s
43. t
44. u
45. w
46. x
47. y
48. z

1. Ursa Minor, θ
2. Ursa Major, h
3. Draco, i
4. Cepheus, ρ
5. *Bootes*, k
6. Corona, υ
7. Hercules, z
8. Lyra, ν
9. Cygnus, g
10. *Cassiepea*, a
11. Perseus, o
12. Auriga, ψ
13. Serpentarius, f
14. Serpens, e
15. Sagitta, θ
16. Aquila, *Antinous*, } h
17. Delphinus, κ
18. Equus Minor, δ
19. Pegasus, ψ
20. *Andromeda*, c
21. Triangulum, ε
22. Aries, τ
23. Taurus, u
24. *Gemini*, g
25. Cancer, d
26. Leo, p
27. *Virgo*, q
28. Libra, ο
29. Scorpio, c
30. Sagittarius, h
31. Capricornus, c
32. Aquarius, i
33. Pisces, l
34. Cetus, ψ
35. Orion, p
36. Eridanus, d
37. Lepus, ν
38. Canis Major, ο
39. Canis Minor, η
40. Navis, s
41. Centaurus, q
42. Crater, λ
43. Corvus, η
44. Hydra, b
45. Lupus, υ
46. Ara, θ
47. Corona meridionalis, ν
48. Piscis Notius, μ
49. Without letters.
    Pavo
    Toucan
    Grus
    Phœnix
    Dorado
    Piscis volans
    Hydrus
    Chameleon
    Apis
    Apis Indica
    Triangulum Australe
    Indus
50. Synopsis Cœli Superioris Borea
51. Synopsis Cœli Inferioris Austro

In Delambre's list (*Hist. de l'Ast. Mod.*), in Canis Major, for x — o read α — ο. The title of the last map is presumed by us, as the only copy of the first edition we know of does not contain it, and the succeeding editions have no letter-press. The constellations in Italics are those of which a front view is presented, of which we shall presently speak.

In this first edition, the letter-press is on the back of the plates. It contains, in addition to what has been noticed, the various names of the constellations and single stars, together with the planets with which they were supposed to have astrological affinities.

In order to restore, as he supposed, the sphere of Ptolemy, Bayer has inverted many of the constellations, and made them turn their backs; and this he has done upon an ecliptic and equator so disposed as to place the spectator *inside*. The state of the question is this: it is pretty clear either that Ptolemy imagined himself on the outside of the globe, looking on the backs of the constellations, or in the inside, looking on the fronts; for neither of the two remaining suppositions will place those stars on the right or left arms, &c., which Ptolemy places there. The alternative might be easily settled by remarking whether the stars in the body are placed in the front or back; but, unfortunately, Ptolemy generally refers them to some part of the dress or arms which has both back and front, such as the belt of Orion; but in the few instances which are tests, Ptolemy always names the back, the only exception we know of being a star in Virgo, which is said to be in the front face (*πρόσωπον*), which may be reconciled with the rest by supposing the back of a figure with the face turned sideways. Therefore, to represent Ptolemy completely, an outside of a sphere, or part of a sphere, must be drawn; and on an inside sphere there is only the choice of changing left into right, and *vice versâ*, by drawing backs, or backs into fronts, and *vice versâ*, by drawing fronts. Bayer has chosen the first, with the exceptions noted in italics in the preceding list, for which he has been blamed by Schickard, Bartsch, Hevelius, Flamsteed, and others: but, singularly enough, he has not carried his own system through; for Andromeda, of which he has represented the face, is precisely one of those signs in which a crucial word is found in Ptolemy, who places one star between the shoulders (*ἐν τῷ μεταφρένῳ*). Flamsteed cuts the knot by assuring us that *νῶτον* and *μετάφρενον*, which vulgar scholars imagine to mean 'the back,' and 'the part of the back between the shoulders,' sometimes mean 'the front' and 'the chest,' in proof of which he brings his own conviction, that Homer and others must in some places have adopted these senses. Montucla, with great probability, conjectures that Bayer intended to draw a convex sphere, but overlooked, or was ignorant of, the proper method of inverting the figures on the copper.

Circumstances which we shall have to mention in FLAMSTEED make it worth while to give the preceding details. The rest of the history of Bayer's work is as follows:—In 1627, Julius Schiller published at Augsburg his *Cœlum Stellatum Christianum*, &c. *sociali operâ J. Bayeri*, &c. *Uranometriam novam priore accuratiorem locupletioremque suppeditantis.* This was an attempt to change the names of the constellations into others derived from the Scriptures; as, for instance, calling the twelve signs of the zodiac after the apostles, &c. The northern constellations were taken from the New Testament and the southern from the Old. Schiller's account is as follows: that Bayer, having laid down the positions of the stars, left all the rest to Schiller, but died before the whole (and Ursa Minor in particular) was completed, and without having time to finish some astronomical *Prolegomena*; that the new Uranometry of Bayer differed from the old in the number and positions of the stars, which he had altered, as well from many nights' observations of his own (whether of positions or of magnitudes is not stated), as from various books which he had found; and that, for this reason, he (Bayer) was anxious that the old Uranometry should never be republished. These maps also represented the convex side of the sphere, that men might see the fronts of these Christian constellations, it being judged indecorous that the apostles should turn their backs. Thus we see that Bayer committed a mistake again, as far as Ptolemy's sphere is concerned. He should have drawn the inside or concave of the sphere, in turning the fronts towards the spectator. This work of Schiller's is also mentioned by Gassendi as follows: 'Cœlum Christianum a J. Bayero affectum, et a Julio Schillero confectum.' (Gass. *Vit. Peir. in ann.* 1628.) It is remarkable that, in this edition, Bayer has abandoned his letters and taken numbers, either of his own or from Ptolemy. The plates are remarkably well executed for the period, and the grouping of the constellations is strikingly beautiful, but the stars are almost lost in the shading.

Schiller states, that a surreptitious edition of Bayer was offered for sale at Frankfort Fair in autumn, 1624; which, by means of the words *novâ methodo delineata*, was made to pass for the expected edition of 1627, that is Schiller's own; but it was struck from the same plates as that of 1603, and therefore probably could not be distinguished from the subsequent editions.

The second edition of the *Uranometria* (plates only, and without letter-press) was printed at Ulm in 1648, and the third (plates only) at Ulm in 1666. In the meanwhile, the letter-press of the first edition, with additions, had been printed under the following clumsy title: *Explicatio Characterum æneis Uranometrias Imaginum Tabulis insculptorum addita.* First edition, Strasburg, 1624; second, Ulm, 1640; third, Augsburg, 1654; fourth, Ulm, 1697.

BAYER, GOTTLIEB (THEOPHILUS) SIEGFRIED, grandson of John Bayer the astronomer, was born at Kœnigsberg in 1694. He applied zealously to the study of the Oriental languages under the tuition of Abraham Wolf, and of some learned Rabbis: he also took a peculiar interest in the study of the Chinese language. After travelling in various parts of Germany for his improvement, he returned to Kœnigsberg in 1717, when he was appointed librarian to the University. In 1726 he was called to Petersburg to fill the chair of Greek and Roman Antiquities, and was there much noticed by the minister, Count Ostermann, and by the Bishop of Novogorod. His health became much impaired by intense study, and he died in February, 1738. He wrote numerous works, some of which are printed separately; others are inserted in the *Memoirs of the Academy of Petersburg* and in the *Acta Eruditorum*; and some were left at his death in MS. Of those that have been published separately the principal are: 1. *Museum Sinicum*, 2 vols. 8vo. Petersburg, 1730. The greater part of the first volume is occupied by an interesting preface, in which the author recapitulates the labours of those who preceded him in the field of Chinese literature; this is followed by a general Chinese grammar; and by a grammar of the popular Chinese dialect of the province of Chin Cheu, which, he says, differs but little from the language of the learned or mandarins. This is followed by a letter from some missionaries at Tranquebar, concerning the Tamul language. The second volume contains a Chinese Lexicon, extracts from several Chinese works, a commentary on the Siao ul lun, or Origines Sinicæ, a treatise on Chinese chronology; and another on the weights and measures of the Chinese. The plates of the Chinese characters in this work are said (*Biographie Universelle*) to be badly executed. 2. *De Horis Sinicis et Cyclo Horario Commentationes*, 4to. Petersburg, 1735. 3. *Historia Osrhoëna et Edessena ex numis illustrata*, 4to. 1734, *Biog. Univ.* This work, which he dedicated to Joseph Simonius Assemani, is much esteemed. 4. *Historia Regni Græcorum Bactriani*, 1738. [See BACTRIA.] 5. *De Nummis Romanis in agro Prussico repertis.* 6. *De Eclipsi Sinica liber singularis*, in which he examines and confutes the Chinese account of a total eclipse, which a Jesuit asserted to have occurred at the time of our Saviour's death. (See Weidler, p. 171.) Of his scattered dissertations, some are on the Mongol, Tangutian, and Brahmanic languages: one is *de Elementis Calmucicis*; another on some books in an unknown language, found near the banks of the Caspian Sea; one is a translation from Confucius; and another, *De Inscriptionibus Iudæorum Græcis et Latinis*, &c. He wrote also *Historia Congregationis Cardinalium de Propaganda fide*, 4to., 1721, giving an account of that celebrated institution, in which, however, he displayed somewhat of a prejudiced spirit and sectarian intolerance. He himself afterwards, writing to Lacroze, said that he was not altogether satisfied with his work, and that he intended to make more accurate researches on the subject. His *Opuscula*, which treat of several topics of erudition, were published by Klotz, 8vo., Halle, 1770, with a biography of Bayer. There is also a life of Bayer in the *Bibliotheque Germanique*, vol. l., from which Chaufepié has taken his account of that writer in the *Nouveau Dictionnaire Historique*.

BAYEUX, a town in the department of Calvados, in France, 17 miles W. by N. of Caen, the capital of the department, and 151 miles in the same direction from Paris, 49° 17′ N. lat., 0° 44′ W. long. It is on the little river Aure, and only about 5 or 6 miles from the coast.

In the earliest times this place was a chief seat of the Druids. After the Roman conquest, if not before, it appears to have borne the name of Arægenus, and subsequently that of Baiocasses (from the people whose capital it was), and by contraction, Baiocæ, and Baiocas. From these latter forms, Bayeux, its modern name, has sprung. Roman relics, vases, statues, and medals, have been dug up in considerable numbers. Under the kings of France, of the Merovingian and Carlovingian races, the town was of considerable importance, and it had a mint. Bayeux was destroyed by the Normans, and rebuilt and peopled by them. The dukes of Normandy regarded it as the second place in their duchy, and had a palace here. It was however pillaged and burned by Henry I. of England, in the beginning of his reign. It suffered severely in the invasions of France by Edward III. and Henry V., as well as in the religious wars of the sixteenth century. The bishopric was erected in the fourth century, as it is believed; and the bishops claimed, on account of the antiquity of the see, superiority over the other bishops of the ecclesiastical province of Neustria, or Normandy: but the popes, to whom, in 1581, the question was referred, did not allow their superiority; without however, so far as appears, disputing the fact (the early origin of the see) on which the claim was grounded.

The town is old, and ill built, with the exception of one good street. The houses are chiefly of wood and plaster, but some are of stone. The antient cathedral is the oldest place of worship in Normandy. It is in the form of a cross, with pointed arches and two spire-crowned towers of unequal height at the western end, and a central tower, which is inferior to the two western towers in height. These towers are of inferior architecture. 'The end spires,' says Dr. Dibdin, 'are rather lofty than elegant; in truth they are, in respect to form and ornament, about as sorry performances as can be seen.' There are five porches at the western end, the central one rather large, the two on each side comparatively small. They were formerly covered with sculptured figures, but the Calvinists in the sixteenth century, and the Revolutionists in the eighteenth, have much mutilated and defaced them. The interior of the cathedral is plain, solid, and rather bare of ornament. Dr. Ducarel, who visited it in 1752, says that it was not adorned with any statues or other ornaments, and that the pictures and painted glass were very indifferent. The walls and chapels of the choir were once covered with large fresco paintings, now nearly obliterated. In each side of the nave are richly-ornamented arches, springing from massive single pillars. The choir is rather fine, and the flying buttresses of the exterior of the nave are admirable. The lead was stripped from part of the roof during the revolution for the purpose of making bullets, and the building in consequence exhibits indications of decay. There is a crypt or subterraneous chapel, the walls of which are covered with paintings, some probably of the fifteenth century, and some still older. The extreme length of the interior is about 315 English feet by 81 feet high, and about 105 feet wide. The transepts are about 120 feet long, by 35 feet wide. The cathedral, after being twice or thrice rebuilt by the Normans, was erected in its present form (except one of the western towers, and some other parts evidently of later origin) by Philip de Harcourt, who held the see in the middle of the twelfth century: but it seems doubtful whether some part does not belong to the earlier edifice erected by bishop Odo, brother of William the Conqueror. The chapter-library consists of 5000 volumes, the remains of a much larger collection, which, having been kept shut up in the chapter-house for ten years during the revolution, was in a great degree spoiled by the wet, which penetrated to them after the roof of the chapter-house had been stripped of its lead. There are now four churches; before the revolution, there were in Bayeux and its suburbs fourteen, or, according to others, eighteen parish churches, two priories, three convents for men, and four for women: the bishopric was very rich.

The chief articles of trade at Bayeux are cloth, linen, serge, hosiery, and other woven fabrics, grain, hemp, cider, and especially butter and lace; the best butter is made during winter and spring, put up into small pots, and carried in large panniers to the adjacent parts of the country, and even to Paris. It is shipped also in large quantities to the French colonies. About three thousand females are constantly employed in the manufacture of lace. Hats, stout muslins, and especially porcelain, are also manufactured here. The population, in 1832, was 9954 for the town, or 10,303 for the whole commune.

Bayeux possesses a *collège* or high school, of considerable reputation; there is a *tribunal de commerce*: a building formerly occupied by the Lazarists as a seminary for the clergy, is now used as a barrack. Bayeux is the capital of an arrondissement containing 390 square miles, or 249,600 acres; the population, in 1832, was 80,414. There are several paper-mills in the arrondissement.

Bayeux was, according to some, the native place of Alain Chartier, one of the old French poets, who lived early in the fifteenth century.

The country of Bessin, of which Bayeux was the capital, was a subdivision of Normandy. It is productive in apples, from which the inhabitants make a great quantity of cider, partly for home consumption, partly to be sent to Rouen and Paris. Towards the sea there is some rich pasture land; but the district generally is not fertile. Slate is quarried in several places; poultry and game, especially quails and red-legged partridges, are plentiful; and butter forms a considerable article of trade, as already noticed. Fish is also abundant, and the shad, the sole, and the oysters of the river Vire, are in good repute. The forest of Cerisy, the largest in the territory, shelters the wild boar, and numerous foxes. The churches of the district are remarkable for their handsome steeples.

BAYEUX TAPESTRY, a web or roll of linen cloth or canvass, preserved at Bayeux in Normandy, upon which a continuous representation of the events connected with the invasion and conquest of England by the Normans is worked in woollen thread of different colours, in the form of a sampler. It is twenty inches wide, and two hundred and fourteen feet long; and is divided into seventy-two compartments, each bearing a superscription in Latin which indicates its subject, or the person or persons represented. It is edged on its upper, as well as its lower part, by a border representing chiefly quadrupeds, birds, sphinxes, minotaurs, and other similar subjects.

Attention was first directed to this singular monument by M. Lancelot, in a memoir presented to the Academy of Inscriptions and Belles Lettres, in 1724, in consequence of his discovering an illuminated drawing from a portion of it, among the manuscripts in the library of M. Foucault, who had been Intendant of Normandy. At the time of finding it he did not know what it actually represented; whether the original was a sculpture round the choir of a church, upon a tomb, or on a frieze; whether it was a painting in fresco, or on glass; or, lastly, whether it might not be a tapestry. He saw that it was historical, and that it related to William Duke of Normandy and the conquest of England; and he wrote to Caën respecting it, but got no information.

Père Montfaucon, upon reading Lancelot's memoir, saw the value of this curious representation, and left no stone unturned till he had discovered the original. He wrote to Caën and Bayeux, and sent a copy of the drawing for inspection, when, at last, the canons of Bayeux recognized it as a portion of the tapestry in their possession, which tradition said had been worked by, or under the superintendence of, Matilda, the Conqueror's queen, which she had herself given to the cathedral, of which Odo, the Conqueror's half-brother, was bishop, and which they, the canons of Bayeux, were accustomed to exhibit to the inhabitants of the city, in the nave of their church, at a particular season of the year. M. Lancelot, in a second memoir, says it was at that time traditionally called *la Toilette de Duc Guillaume*. Montfaucon sent an able artist, of the name of Antoine Benoit, to copy it; and at the opening of the second volume of his *Monumens de la Monarchie Françoise*, published in 1730, engraved the whole in a reduced form, accompanied with a commentary upon the Latin inscriptions, which, throughout, explain the intention of the figures represented in the different compartments.

M. Lancelot, upon the publication of the tapestry by Montfaucon, sent a second memoir to the Academy of Inscriptions and Belles Lettres (as has been just mentioned), which was read in 1730, and published in the same year, in the eighth volume of their transactions, in which he states that the earliest mention of this tapestry among the archives of the cathedral is in an inventory of jewels and ornaments belonging to the church, taken in 1476, where it is called 'une tente très longue et étroite de telle à broderie de ymages et escrpteaulx faisans representation du conquest d'Angleterre, laquelle est tendue environ la nef de l'Eglise le jour et par les octaves des reliques.'

Dr. Ducarel is the next who gives us an account of this tapestry, in the appendix to his *Anglo-Norman Antiquities* (folio, London, 1767), where he has printed an elaborate description of it, which had been drawn up some years before, during a residence in Normandy, by Smart Lethieullier, Esq., an able English antiquary. Ducarel tells us that when he was in Normandy it was annually hung up on St. John's day, and went exactly round the nave of the church, where it continued eight days. At all other times it was carefully kept locked up in a strong wainscot press in a chapel on the south side of the cathedral.

From this time till the autumn of 1803, it received but little further notice, when Bonaparte, then First Consul of France, contemplating the immediate invasion of England, ordered it to be brought from Bayeux to the National Museum at Paris, where it was deposited during some months for public inspection. The First Consul himself went to see it, and affected to be struck with that particular part which represents Harold on his throne at the moment when he was alarmed at the appearance of a meteor which presaged his defeat: affording an opportunity for the inference that the meteor which had then been lately seen in the south of France was the presage of a similar event. (*Gentleman's Magazine*, 1830, vol. lxiii., pt. ii. p. 1136.) The exhibition was popular: so much so, that a small dramatic piece was got up at the Theatre du Vaudeville, entitled *La Tapisserie de la Reine Mathilde*, in which Matilda, who had retired to her uncle Roger during the contest, was represented passing her time with her women in embroidering the exploits of her husband, never leaving their work, except to put up prayers for his success. (Millin, *Magazin Encyclopédique*, 1803, tom. iv. p. 541.) After having been exhibited in Paris, and in one or two large towns, the tapestry was returned to Bayeux, and lodged with the municipality. Mr. Dawson Turner, in his *Tour in Normandy*, written in 1818, says, the bishop and chapter of Bayeux had then recently applied to the government for the tapestry to be restored to their cathedral, but without effect. (*Tour in Normandy*, 8vo. Lond. 1820, vol. ii. p. 242.)

It was most fortunate that this curious monument escaped destruction during the Revolution. Its surrender at that time was demanded for the purpose of covering the guns: a priest, however, succeeded in concealing and preserving it from destruction.

The new degree of publicity given to the tapestry by its exposure in the French capital, again made it a subject of discussion; and the Abbé de la Rue, professor of history in the Academy of Caën, endeavoured, in a memoir, afterwards translated by Francis Douce, Esq. and printed in the seventeenth volume of the *Archæologia* of the Society of Antiquaries, to show that a mistake had been committed by tradition in the selection of the Matilda, and that its origin ought not to have been ascribed to Matilda the Conqueror's queen, but to Matilda the empress, the daughter of King Henry I.

The next memoir on this curious subject is comprised in a short letter from Mr. Hudson Gurney, printed in the eighteenth volume of the *Archæologia*, who saw the tapestry at Bayeux in 1814, where it then went by the appellation of the *Toile de St. Jean*, which is explained by what Ducarel has said, that it was formerly exhibited upon St. John's day. Lancelot, Montfaucon, Ducarel, and De la Rue, appear all to have considered the tapestry as a monument of the Conquest of England, intended to have been continued to Duke William's coronation, but from some cause or other left unfinished. Mr. Gurney considered it to be an apologetical history of the claims of William to the crown of England, and of the breach of faith and fall of Harold; and that, as it stands, it contains a perfect and finished action.

In the mean time, the Society of Antiquaries in 1816 despatched an excellent and accurate artist, Mr. Charles Stothard, to Bayeux, who in that and the succeeding year brought home a perfect fac-simile of the tapestry; the drawings of which have been since engraved, coloured like the original, and published in the sixth volume of the *Vetusta Monumenta*, plate i. to xvii.

The appearance of the first portion of Mr. Stothard's drawings gave rise to some Observations from Mr. Amyot, in refutation of an historical fact which the tapestry had been supposed to establish: namely, that of Harold's mission to Normandy by the Confessor to offer the succession to William. (*Archæol.* vol. xix. p. 88.) These were followed by C. Stothard's own observations while at Bayeux, pointing out such circumstances as presented themselves to his notice during the minute investigation to which the tapestry was necessarily subjected (*Ibid.* vol. xix. p. 184), and again followed by *A Defence of the early antiquity of the Tapestry*, by Mr. Amyot (*Ibid.* p. 192), in which the objections raised by the Abbé de la Rue against the tradition which made the tapestry co-eval with the events it celebrates, are completely invalidated. The last account of this tapestry is in Mrs. Stothard's *Letters from Normandy*, 4to. Lond. 1820, let. xi. pp. 121-134; except a brief notice of it in Dibdin's *Bibliographical Tour*, 8vo. Lond. 1821, vol. i. pp. 375-391.

The work begins with the figure of a king seated upon his throne, who is addressing one of two persons standing by his side: the inscription is simply 'EDWARD REX.' It appears to be Harold taking leave. We next see Harold proceeding to Boseham attended by several followers; he carries a hawk upon his fist, at that time the distinguishing mark of nobility; his dogs are running before him: 'IBI HAROLD DVX ANGLORVM ET SVI MILITES EQVITANT AD BOSHAM.' A church is then represented, in front of which are two men who appear about to enter: above is the word 'ECCLESIA.' This church is Boseham in Sussex. The party next appear feasting at a table in a house, previous to their embarkation. Some persons are descending the steps from the apartment where they have been dining; others are embarking in four vessels. Harold enters first, still bearing the hawk and carrying a dog under his arm. These last-mentioned figures are wading through the water, naked from the waist downwards: 'HIC HAROLD MARE NAVIGAVIT ET VELIS VENTO PLENIS VENIT IN TERRAM WIDONIS COMITIS.' The last of the four vessels next appears anchoring in France, Harold standing at the prow: his name 'HAROLD' above. Three figures are then represented upon land; one of them is Harold in the act of being seized by order of Guy Earl of Ponthieu, who is on horseback, followed by his people: 'HIC APPREHENDIT WIDO HAROLDVM ET DVXIT EVM AD BELREM ET IBI EVM TENVIT.' Harold and Guy are next seen mounted upon their horses, and attended both by Saxon and Norman soldiers. The Saxons are distinguished by wearing mustachios; the Normans have none. Harold and Guy appear in conversation, 'VBI HAROLD ET WIDO PARABOLANT:' when messengers arrive from William Duke of Normandy to the Earl of Ponthieu 'VBI NVNTII WILIELMI DVCIS VENERVNT AD WIDONEM.' Between the Earl of Ponthieu who is seated, and his guards who receive the messengers, a tree divides the subject, as other trees, in like manner, divide all the principal events throughout the work. A dwarf, with the name of 'TVROLD' above, holds the horses of Duke William's messengers. William's messengers are again represented on horseback, bearing shields; 'NVNTII WILIELMI.' Next is a Saxon messenger mustached, kneeling to William on his ducal seat: 'HIC VENIT NVNCIVS AD WILGELMVM DVCEM.' Guy is seen immediately after, conducting Harold to the duke: 'HIC WIDO ADDVXIT HAROLDVM AD WILGELMVM NORMANNORVM DVCEM.' William meets them, and returns with Harold to his palace: 'HIC DUX WILGELM CVM HAROLDO VENIT AD PALATIUM SVVM.' We have then a female figure within the door of a church, and a priest, and beneath them the words 'VNVS CLERICVS ET ÆLFGYVA.' Mr. Douce says evidently Adeliza, William's daughter, who was affianced to Harold. The next event is William's warfare with Conan Earl of Bretagne, in which it is apparent Harold assisted and rendered essential service to the Norman party: 'HIC WILLEM DVX ET EXERCITVS EIVS VENERVNT AD MONTEM MICHAELIS.' Soldiers, mounted on horseback, arrive at Mount St. Michael and pass the river Cosno: 'ET HIC TRANSIERVNT FLVMEN COSNONIS ET VENERVNT AD DOL.' Harold is depicted among them, assisting some persons who had fallen into the quicksands while passing the river: 'HIC HAROLD DVX TRAHEBAT EOS DE ARENA.' We have then the words 'ET CONAN FVGA VERTIT.' Conan is seen escaping from Dol and descending the walls by a rope. Troops are flying and approach Rennes: 'REDNES.' The Norman soldiers are next employed in attacking Dinant: 'HIC MILITES WILLELMI DVCIS PVGNANT CONTRA DINANTES.' Conan delivers up to them the keys of the town, which they succeed in taking: 'ET CVNAN CLAVES PORREXIT. After this event William rewards the services of Harold by giving him a suit of armour: 'HIC WILLELM DEDIT HAROLDO ARMA.' William and his party then arrive at Bayeux: 'HIC WILLELM VENIT BAGIAS.' It is said that William, in order to secure to himself the succession of the Saxon throne, without having Harold for a competitor, caused him to take a solemn vow that he would never attempt the possession of the English crown: this vow he obliged Harold (then within his power) to make upon a covered altar, beneath which William had placed the most sacred and precious relics. No sooner had Harold sworn the oath, than the Norman duke uncovered the altar, and showing him by what sacred things he had vowed, enforced upon his mind the blasphemy he would be guilty of, if he ever attempted the violation of his oath. Harold is represented taking the oath, while standing between two covered altars· 'VBI HAROLD SACRAMENTVM FECIT WILLELMO DVCI.' Harold next embarks for England: 'HIC HAROLD DVX REVERSVS EST AD ANGLICAM TERRAM ET VENIT AD EDWARDVM REGEM;' and is immediately after represented as relating the events of his journey to the Saxon king.

The next subject is the death and funeral of Edward the Confessor. The funeral procession comes first: 'HIC PORTATVR CORPVS EADWARDI REGIS AD ECCLESIAM PETRI APOSTOLI.' The king is then represented in his bed, giving his last directions to the officers of his court: his wife Editha weeping by his side: 'HIC EADWARDVS REX ALLOQVIT FIDELES.' Beneath he is represented dead and laid out: 'ET HIC DEFVNCTVS EST.' The next subject is the crown offered to Harold by the people: 'HIC DEDERVNT HAROLDO CORONAM REGIS.' Harold then appears upon his throne, Stigand, Archbishop of Canterbury, at his side: 'HIC RESIDET HAROLD REX ANGLORVM. STIGANT ARCHIEPISCOPVS.' The subject that follows is the appearance of a comet, at which the people are gazing: 'ISTI MIRANT STELLAM.' Harold is seen below it, listening to a person who has approached him: his name above, 'HAROLD.' Boats are represented in the border beneath. The next subject which the tapestry represents is a ship, bringing to William the news of Harold's having assumed the English crown: 'HIC NAVIS ANGLICA VENIT IN TERRAM WILLELMI DVCIS.' William and his half-brother, Odo bishop of Bayeux (distinguishable by the tonsure), appear consulting together and giving orders that ships should be built for the purposed invasion of England: 'HIC WILLELM DVX IVSSIT NAVES EDIFICARE.' Accordingly several persons are next represented as employed in cutting down trees; carpenters are constructing vessels, and others draw them into the sea: 'HIC TRAHVNT NAVES AD MARE.' The embarkation of the Normans forms the succeeding subject; they carry with them on board the ships wine, arms, and provisions: 'ISTI PORTANT ARMAS AD NAVES ET TRAHVNT CARRVM CVM VINO ET ARMIS.' William going to his own vessel is next represented: 'HIC WILLELM DVX IN MAGNO NAVIGIO.' Numerous ships are then seen passing the sea, loaded with troops and horses, and William arrives in Pevensey bay (his own vessel known by the figure of a boy holding a pennon at the stern; it bears a lantern at the mast): 'MARE TRANSIVIT ET VENIT AD PEVENESÆ.' The troops and horses next appear disembarking: they proceed to Hastings, where they seize provisions: 'HIC EXEVNT CABALLI DE NAVIBVS ET HIC MILITES FESTINAVERVNT HASTINGA VT CIBVM RAPERENTVR.' A figure on horseback, bearing a pennon at the end of his lance, is here distinguished by the words 'HIC EST WADARD.' The Normans are now busied in cooking meats and regaling themselves: 'HIC COQVITVR CARO ET HIC MINISTRAVERVNT MINISTRI. HIC FECERVNT PRANDIVM.' The soldiers dine upon their shields. Odo seated at a table, with William on his right hand, bestows his benediction on the viands: 'ET HIC EPISCOPVS CIBVM ET POTVM BENEDICIT.' William, with Odo and Robert Earl of Mortaigne, are seated under a canopy: 'ODO EPISCOPVS. WILLELM. ROTBERTVS.' A figure carrying a pennon then appears giving orders that the army should encamp at Hastings: 'ISTE IVSSIT VT FODERETVR CASTELLVM AT HESTENGA.' The camp forming: 'CEASTRA.' William appears directing the building of a castle. The news is then brought to William that Harold is advancing to oppose the Normans; William on a raised seat: 'HIC NVNTIATVM EST WILLELMO DE HAROLD.' Two Normans setting fire to a house; a woman and child escaping from it: 'HIC DOMVS INCENDITVR.' The soldiers of William leave Hastings to meet Harold in the field; and the duke now, for the first time since his arrival, appears in armour: the march of the horsemen: 'HIC MILITES EXIERVNT DE HESTENGA ET VENERVNT AD PRELIVM CONTRA HAROLDVM REGEM.' Odo is represented bearing a mace, but preceded by William on horseback with a club, who interrogates Vitalis, an individual of his army, also on horseback, whether he has seen Harold's forces: WILLELM DVX INTERROGAT VITAL. SI VIDISSET EXERCITVM HAROLDI. Harold also receives information relative to William's force: 'ISTE NVNTIAT HAROLDVM DE EXERCITV WILLELMI DVCIS.' William then addresses his soldiers, who are proceeding onward to the battle: HIC WILLELM DVX ALLOQVITVR SVIS MILITIBVS VT PREPARARENT SE VIRILITER ET SAPIENTER AD PRELIVM CONTRA ANGLORVM EXERCITVM.' The Normans approach, mostly on horseback, but intermixed with archers on foot. The battle now ensues, in which the Saxons are chiefly on foot, their shields distinguished from those of the Normans by being usually round with a boss in the centre. Lewine and Gyrth, the brothers of Harold, are slain: 'HIC CECIDERVNT LEWINE ET GYRTH FRATRES HAROLDI REGIS.' The obstinacy of the contest is next represented: 'HIC CECIDERVNT SIMVL ANGLI ET FRANCI IN PRELIO.' Odo is now represented charging full speed and striking at a horseman with a club or mace: 'HIC ODO EPISCOPVS BACVLVM TENENS CONFORTAT PVEROS.' This probably means that Odo had to encourage the troops, upon a report that William was slain. The battle continues: 'HIC EST WILLELM DVX.' The duke appears showing himself and giving orders: 'HIC FRANCI PVGNANT ET CECIDERVNT QVI ERANT CVM HAROLDO.' The death of Harold, the standard carried before whom appears to be a dragon. We have then the discomfiture and flight of the Saxons. Here the tapestry ends with figures of persons retreating in great haste; not complete in its ornamental work, but, in all probability, complete in its history.

This extraordinary piece of needle-work, for such it is, though called tapestry, is now preserved in the hotel of the prefecture at Bayeux, coiled round a machine, like that which lets down the buckets of a well, and is exhibited by being drawn out at leisure over a table. The plates of it, published by the Society of Antiquaries, in the fourth volume of the *Vetusta Monumenta*, will enable any one to form a very accurate notion of its actual appearance. Plates i. to xvi. represent the whole, one-fourth size of the original. The xviith plate gives a portion of the true size. Dibdin, in his *Bibliographical Tour*, vol. i. p. 377, has engraved a view of it upon its machine.

It was long since decided by the French antiquaries, that this work is of the age of the Conquest. The Abbé de la Rue, alone, still maintains that it was executed in the time of our Henry the First. Those persons, however, among the English antiquaries, whose particular learning and knowledge render them competent judges of the authenticity of this tapestry, unite in the conviction that its own internal evidence corroborates the antient tradition which the French antiquaries adopted. It represents the minutest manners and customs of the earliest Norman times in England; and was evidently designed while the particulars of the contest were known and fresh in recollection. It embraces several events of which no other record now exists: amongst which may be noticed the taking of Dinant, and the war between the Duke of Normandy and Conan Earl of Bretagne. Nor does any other notice exist of the service rendered by Harold to duke William, during his war in Britany. It is not a little remarkable too, that in the compartment which represents the funeral procession of Edward the Confessor, a figure is portrayed placing a weathercock upon the spire of Westminster abbey, indicating that the building was scarcely finished at the time of his decease. Ducarel, as we have already mentioned, says, that this tapestry, when exhibited at Bayeux, went exactly round the nave of the church.

Odo, it is to be remarked, makes the most conspicuous appearance, next to Duke William, of any Norman personage represented in the tapestry; and three figures, *Wadard*, *Turold*, and *Vital*, apparently unimportant personages, were really among the chief of those whom Odo brought into the field. Wadard and Vitalis, with the son of a person named Turold, are recorded, twenty years after the conquest, among the under-tenants of Odo, as persons rewarded with lands, in the Domesday Survey. Wadard held property under the bishop in no fewer than six counties; Vitalis held lands under Odo in Kent; and the son of Turold in Essex. (Ellis's *Introduction and Indices to Domesday*, vol. ii. p. 403.) These circumstances cannot but appear convincing, not only that the tapestry is of the age assigned to it by tradition, and was worked expressly for the bishop's cathedral; but that, in all probability, it was a present from Matilda the conqueror's queen, as a grateful memorial of the effective service which Odo had rendered in the conquest.

BAYLE, PETER, an eminent critic and controversial writer of the seventeenth century, was born at Carlat, November 18, 1647, in the Comté de Foix, in France. Of his early life we shall only state, that he displayed great aptitude for learning, and an uncommon passion for reading, and that his education was commenced under the care of his father, the Protestant minister of Carlat, continued at the Protestant University of Puylaurens, where he studied from February, 1666, to February, 1669, and concluded at the Catholic University of Toulouse. He had not been there more than a month when he made public profession of the Roman Catholic religion, to which, it is said, he was converted by the free perusal of controversial divinity at Puylaurens. It would seem that his creed was lightly taken up, for, during his short residence at Toulouse, he was reconverted to Protestantism by the conversation of his Protestant connexions. *Perhaps this facility of belief in early life may* have had some effect in producing the scepticism of his latter years.

In August, 1670, he made a secret abjuration of Catholicism, and immediately went to Geneva, where he formed an acquaintance with many eminent men, and especially contracted a close friendship with James Basnage and Minutoli. At Geneva and in the Pays de Vaud he lived four years, supporting himself by private tuition. In 1674 he removed first to Rouen, and soon after to Paris. The treasures of the public libraries, and the easy access to literary society, rendered that city agreeable to him above all other places. He corresponded freely on literary subjects with his friend Basnage, then studying theology in the Protestant University of Sedan, who showed the letters to the theological professor, M. Jurieu. By these, and by the recommendations of Basnage, Jurieu was induced to propose their author as a proper person to fill the then vacant chair of philosophy, to which, after a public disputation, Bayle was elected, November 2, 1675. For five years he seems to have been almost entirely occupied by the duties of his office. In the spring of 1681, however, he found time to write his celebrated letter on comets, in consequence of the appearance of the remarkable comet of 1680, which had excited great alarm among the superstitious and vulgar. But the license for its publication being refused, it was not published till the following year, after the author's removal to Rotterdam.

In July, 1681, the University of Sedan, contrary to the faith of treaties, was arbitrarily disfranchised by a decree of Louis XIV. Thus deprived of employment, Bayle fortunately obtained, through the agency of one of his pupils, a pension from the magistracy of Rotterdam, who were further induced to form a new establishment for education, in which Bayle was appointed professor of history and philosophy, and Jurieu of theology. Bayle delivered his first lecture in December, 1681. In the following spring the letter on comets was anonymously printed; but its author was soon discovered, and obtained a considerable increase of reputation. The reader will readily gather from the title (*Lettre . . . . ou il est prouvé par plusiéurs raisons tirées de la Philosophie et Théologie, que les Comètes ne sont point le présage d'aucun malheur. Avec plusieurs réflexions morales et politiques, et plusieurs observations historiques, et la réfutation de quelques erreurs populaires*) that it was composed quite as much for the sake of the digressions and incidental discussion of various points, as for that refutation of a popular superstition, which is its ostensible purpose. In the same spring (1682) he wrote an answer to Maimbourg's *Histoire du Calvinisme*, a libellous misrepresentation of the conduct of the French Protestant Church. (*Critique Générale de l'Hist. du Calv. de M. Maimb.*) This was composed in a fortnight, during the Easter vacation. It met with great success, and having been condemned to be publicly burnt in Paris, was bought and read in that city with great avidity.

We pass over some minor works to mention that in 1684 Bayle commenced his *Nouvelles de la République des Lettres*. The notion of a literary journal was not new; the *Journal des Savans* had been set on foot in Paris in 1665, and received with applause in Germany and Italy, as well as France. The *Nouvelles* were published monthly, beginning with March, 1684, and consisted of a series of reviews of such works as the editor thought worthy of special notice, and a list of new publications, with short remarks on them. In May the states of Friesland offered to make Bayle professor of philosophy in the University of Franeker, but he declined the appointment, which was more lucrative than the one that he held. On completing the first year of the *Nouvelles*, Bayle affixed his name to the work, contrary to his usual practice, which was carefully to conceal the parentage of all that he wrote. We may here state, that, whether from timidity, habitual love of secrecy, or the wish to leave himself at liberty to take either side of a question, Bayle generally employed the most elaborate devices of false dates and fictitious prefaces, to divert public suspicion from himself. These practices he carried to an extent, inconsistent, as we think, with a candid and manly spirit.

At this time men's minds were deeply steeped in the bitterness of political and religious dissension. The revocation of the Edict of Nantes, and persecution of the French Protestants, had raised a violent indignation on the part of those who were banished for conscience-sake, and a strong sympathy in all Protestant countries for the sufferings of their brethren. Bayle expressed his feelings on this subject with moderation in the *Nouvelles*; but he made a bitter attack on the dominant church in an anonymous publication (*Ce que c'est que la France toute Catholique sous le Règne de Louis le Grand*), which he followed in the same year, 1686, by a 'Philosophical Commentary' on the words of St. Luke xiv. 23, 'Constrain them to come in.' In these two works he laboured to expose the atrocious conduct of the French government towards the Protestants, and the odious nature of persecution in general. The pains which Bayle bestowed upon this work, in addition to the fatiguing task of writing his *Nouvelles*, brought on an illness in the spring of 1687, which incapacitated him for literary exertion during more than a year. He was obliged to give up his periodical, which at his own request was continued, but under a different name (*Histoire des Ouvrages des Sçavans*), by Henry Basnage, brother to his friend. The *Nouvelles*, however, continued to be published by another hand.

In 1690 there appeared a book, once celebrated, now forgotten, entitled *Avis Important aux Refugiez, &c.*, containing a violent attack on the doctrines and conduct of the French Protestants. This work Jurieu, whose former friendship had long given way to jealousy of the reputation, or dislike of the opinions, real or suspected, of his colleague, chose to attribute, without any proof, to Bayle, upon whom he published a violent attack. (*Examen d'un libelle intitulé Avis Important, &c.*) Bayle retorted in *La Cabale Chimérique*, Rotterdam, 1691, followed by *La Chimère de la Cabale de Rotterdam démontrée, &c.* It is not necessary to trace the progress of the quarrel, which was marked by great asperity. The question whether Bayle was the author of the *Avis, &c.*, or not, a question deeply affecting his literary integrity, can hardly be regarded as determined. Bayle always denied it. His friend and biographer, Des Maizeaux, seems nevertheless to disbelieve his assertions, and has, hypothetically, made a very lame defence on the supposition that he was the author. The piece is inserted in the collection of his miscellaneous works: there is, however, no direct evidence whatever to prove that he wrote it but the assertions of the printer, and of a person who corrected the press, and said that the manuscript was in Bayle's writing.

Whether Jurieu was right or wrong in his accusation, his precipitate and violent conduct drew on him great discredit, especially at Geneva. But he possessed much influence in Holland, which he employed in inducing the Consistory of Rotterdam to review his adversary's letter on comets, which they condemned as containing dangerous and antichristian doctrines. This was employed by the magistracy of Rotterdam as an excuse for depriving him of his pension and license to teach; but the real cause, according to Des Maizeaux, was the express command of William III., who exercised an overpowering influence in that body, and who was led to believe that Bayle was deeply engaged in advocating the views and wishes of the court of France. The injury thus done to our author was slight, for his habits were simple and unexpensive, and he rejoiced in being finally delivered from the labour of teaching, and left at liberty to attend to his chief work, the *Dictionnaire Historique et Critique*. His first scheme in respect of this undertaking was to compose a dictionary, expressly to correct the errors of other dictionaries; and he proceeded so far as to publish a specimen of the intended work (*Projet et Fragmens d'un Dictionnaire Critique*). But this specimen not suiting the public taste, he altered his plan, and produced his dictionary in the form in which it now is. The composition of it, together with his paper warfare with Jurieu, engrossed his time until August, 1695, when the first volume appeared; the second volume, which completed the first edition, was printed in 1696, but bears the date of 1697. It obtained great popularity, so that a second edition was soon called for; but it gave great offence to the religious, and incurred a public censure from the Consistory of Rotterdam. Five principal errors were alleged against it:—1. The indecency visible in many passages; 2. The tendency of the whole article on David; 3 and 4. The support covertly given to the Manichean doctrine of evil, and the sceptical tenets of the philosopher Pyrrhon; 5. Too studious commendation of Epicureans and atheists, by which a tacit support was supposed to be given to their tenets. The author submitted to the authority of the church, and promised to amend the faults in a second edition. According to promise, the article David was replaced by another; but the purchasers exclaimed loudly against this interference with the work, and the publisher finally reprinted the obnoxious article in a separate form. It is to be found at the end of the second volume of the editions of 1720 and 1730, &c. Little notice was taken of the other objections. Instead of altering, Bayle defended himself and his work in a series of *Eclaircissements*, subjoined to the second edition of 1702, and published in subsequent editions of the book.

It is a singular property of this singular work, that, unlike all other dictionaries, it has never been superseded, though near a century and a half has elapsed since it was written. The author did not intend it to be, like Moréri's antecedent dictionary, a book of general historical reference; we might rather suppose that, being disappointed in his first scheme of publishing a work supplementary to, and corrective of, other works, he had resolved to make available, in the shape in which they could most readily be produced the multifarious stores of his vast reading and extensive memory. Consequently the dictionary contains much curious and minute, and much trifling and almost useless information. The chance is against our finding exactly what we want in it; but if the subject is treated at all, we are pretty sure to find something which we should hardly find elsewhere. As a book for casual reading it is highly amusing, both in respect of the matter and the style, in which his wit and power of sarcasm are largely displayed: the form, however, is highly objectionable, the text being usually meagre, and serving as a vehicle to introduce numberless digressions, criticisms, and quotations in the shape of notes. This is the more to be regretted, because the influence of Bayle's example has caused two valuable English works, the *General Dictionary*, in 10 vols. folio, and Kippis's *Biographia Britannica*, to be composed on the same plan

After the publication of the second edition, which was considerably enlarged, Bayle amused himself by preparing the first volume of *Réponses aux Questions d'un Provincial* intended, as he says, 'to occupy a middle place between books for study and books for recreation.' It is characterized by a late writer (*Biog. Univ.*) as 'a work which the author could not define, and which is undefinable, because all possible matters are treated in it without order, and in separate chapters.' In 1704 he published a defence of his Letter on Comets, which engaged him in a controversy, which lasted for the rest of his life, with Le Clerc, the well-known author of the *Bibliothèque Choisie*, and a theological writer named Jacquelot. To this discussion the second and third volumes of the *Réponses aux Questions, &c.*, 1705, were devoted. Controversy seems to have been Bayle's pleasure; and it is probable that the attacks made on his works made no impression on his tranquillity; but his enemies had nearly done him a serious injury by endeavouring to procure his banishment from Holland in 1706, by reviving the accusation that he was a secret agent of France. It appears probable that the English ministry, possessed with this belief, would have demanded his banishment, had it not been for the Earl of Shaftesbury, who had known Bayle in Holland, and who interfered in his behalf. At that time he was suffering from an affection of the chest, for which, believing it to be hereditary and mortal, he refused to call in medical assistance. His last works were a fourth volume of the *Réponses*, and *Entretiens de Maxime et Themiste*, in answer to Le Clerc, and a second book under the same title, in answer to Jacquelot. The last was not quite finished: he was working on it the evening before his death, which took place December 28, 1706, in the 60th year of his age.

Bayle's life and habits, in the relations of man to man, were simple, temperate, and moral. Without a cynical or affected contempt, he displayed a truly philosophical indifference to wealth; and he lived independently, in virtue of the moderation of his wants, yet not improvidently, for he left a legacy of 10,000 florins to his niece. The worst moral charge brought against him is that of literary duplicity; and of this he had no right to complain: for a man who is known to conceal his authorship under the thickest disguises of false names, false dates, and false prefaces, need not wonder if much which cannot be proved is believed to be his. The same spirit of concealment attended him in religion; for whether he was Atheist, Epicurean, or Christian, it is at least pretty clear from his writings that he could not have been at heart a member of the strict church to which he outwardly conformed.

Warburton says of Bayle, 'A writer whose strength and clearness of reasoning can be equalled only by the gaiety, easiness, and delicacy of his wit; who, pervading human nature with a glance, struck into the province of *paradox* as an exercise for the restless vigour of his mind; who, with a soul superior to the sharpest attacks of fortune, and a heart practised to the best philosophy, had not yet enough of real greatness to overcome that last foible of superior geniuses,—the temptation of honour, which the academic exercise of wit is supposed to bring to its possessors.' (*Divine Legation*, book i. sect. 4, vol. i. p. 33, 8vo. edition, 1733.)

The later folio editions of Bayle's *Dictionary* are comprised in four volumes. The supplement by the Abbé Chaufepié occupies four more. Bayle's miscellaneous works, of which we have not given any thing like a complete list, fill four volumes also. (*Life of Bayle*, by Des Maizeaux, prefixed to his edition of the *Dictionary*.)

BAYLÉN, the Roman BÉTULA or BÆTULON, a town of Andalusia, in the province of Jaen, 38° 2′ N. lat., 3° 45′ W. long. It is situated on a gentle elevation, commanding an extensive plain, which is bounded on the north, east, and west, by lofty hills, and on the south, south-east, and south-west, by the rivers Guadalon and Campana. The soil is very fertile, and produces corn, fruit, oil and wine, the two last in abundance. The town is mentioned in public records of the eighth century. It contains one parish church, an ancient castle, a palace belonging to the Count of Baylen, an hospital, and some good houses. The inhabitants, who amount to 5996, are employed in agriculture, the manufacturing of glass, bricks, and common cloth. There are also twelve oil-presses or mills, and some soap manufactories.

On the 19th of July, 1808, an engagement took place here, between the Spanish and French armies, the former commanded by General Castaños, the latter by General Dupont, who had occupied Baylen. At three o'clock in the morning the battle began, and was sustained with equal courage on both sides until noon, when the French general sued for terms. A convention was agreed upon, by which the French were to lay down their arms in the field, and to be conveyed into France by the Spanish government. On the 23rd 18,000 French soldiers defiled before the Spanish army, laid down their arms, eagles, and other military accoutrements, and were conducted to Cadiz. But unfortunately the circumstances of the war prevented the exact fulfilment of the latter part of the convention. The officers were conveyed to France, but the men were placed in hulks, where they remained some years, until, driven to despair, the few who had survived the miseries of their confinement cut the cables of their prison ships, and, abandoning themselves to the mercy of the winds, were saved by their countrymen then besieging Cadiz. This victory, the first obtained in the peninsula over the French, cost the Spaniards 978 men in killed and wounded. The loss on the side of the French was 2600 men in killed and wounded, among which latter was General Dupont himself. (*Bulletin of General Castaños.*)

BAYNE, ALEXANDER, of Rires, first professor of the municipal law of Scotland. The only biographical notice of this learned person we have yet met with is that by Bower (*Hist. of the University of Edinburgh*, vol. ii. p. 197), and in the 'very little information concerning him' which it contains, there are doubts to be removed and errors to be corrected.

He was son of John Bayne of Logie in the county of Fife, who was descended from the old Fifeshire family Bayne of Tulloch, to whom he was served heir in general on the 8th of October, 1700. (*Inquis. Retorn. Abbrev.*) On the 10th of July, 1714, he passed advocate at the Scottish bar (*Fac. Rec.*), but does not appear ever to have had much practice. In January, 1722, the faculty appointed him senior curator of their library (*Fac. Rec.*), and on the 28th of November, same year, he was constituted by the town-council of Edinburgh professor of Scots law in the university of that city. The late settlement of this the earliest chair of Scots law is not a little remarkable, and can be accounted for only by a reference to the actual law and practice of the Scots courts, to which, therefore, we shall here for a moment advert.

The common law of Scotland was substantially the same with that of England till the erection of the Court of Session in the beginning of the sixteenth century, when, in consequence of the peculiar constitution of that court, the old common law was superseded by the principles of the civil and canon laws, which thereupon became, in fact, as in legal acceptation, the common law. The members of the Court of Session were, from its first institution, associated together under the name of the college of justice; but it does not appear that they ever adopted a collegiate mode of life, or that any domestic school of law was ever erected among them. The consequence was, that till the beginning of the last century, when, as we shall immediately see, the sources of the Scottish law ceased to be sought in the Roman code, preparation was generally made for the Scottish bar at some one of the foreign colleges, of which those of France and Italy were the most frequented, till the lustre of the Cujacian School in the Low Countries, aiding the connexion which arose between Scotland and them at the Reformation, drew the student thither. On the erection of the University of Edinburgh, however, attempts were made by the bench and bar to remedy the inconvenience of foreign study, but as the object of those attempts was to establish a chair of civil law, they were long baffled by the want of means of preparatory instruction in the language of that law. The only method of attaining a practical knowledge of the profession in those times was attendance on some lawyer of reputation; and, accordingly, we not only find such individuals as Sir Thomas Hope and others who rose to celebrity at the bar passing their early years in the capacity of clerk, or, as it was then, in French phrase, called 'servitor' to an advocate, but these servitors were privileged by the court to act behind the bar, a station and privilege which their descendants, the 'advocates first clerks,' enjoy to this day. In the end of the seventeenth century private lectures on the law began to be given in Edinburgh by members of the faculty, and at length, in 1707, a chair of public law was founded; and, in 1709, the chair of civil law. By this time, however, the natural working of an independent judicature, and, still more, the operation of the union with England, by which the Scots courts were subjected to an appellate jurisdiction common to both parts of the island, carved out a system of law in many respects different from that of Rome, and requiring a separate chair for its elucidation. But with the predilections which habit and associations had given to the Scottish lawyer, the civil law was clung to as the guide of the courts, and several circumstances impress us with the idea, that the chair of Scots law to which Bayne was inducted was regarded with contempt by the learned faculty whereof he was a member. The *Faculty Records* contain no allu sion to his appointment. The only record of it which we have is in the *Council Register*, where, under date 28th November 1722, there is this entry:—

'Mr. Alexander Bayne having represented how much it would be for the interest of the nation and of this city, to have a professor of the law of Scotland placed in the university of this city, not only for teaching the Scots law but also for qualifying of writers to his Majesty's signet; and being fully apprised of the fitness and qualifications of Mr. Alexander Bayne of Rires, advocate, to discharge such a province—therefore the council elect him to be professor of the law of Scotland in the university of this city, for teaching the Scots law and qualifying writers to his Majesty's signet.' (Bower's *Hist. ut supra.*) We have not been able distinctly to ascertain the estimation in which Bayne was held by his learned compeers, any more than the true source of the neglect with which his little works on the law have been hitherto regarded: but only a year elapsed when his despised chair began to work a change on the course of examination for the bar, and on the system of legal study. In January, 1724, Mr. Dundas of Arniston, D.F., proposed to the faculty, that all Intrants should, previous to their admission, undergo a trial, not only in the civil law, as heretofore, but also in the municipal law of Scotland (*Fac. Rec.*); and though this was long resisted, it was at length determined by Act of Sederunt, 28th February, 1750. We apprehend it is to Bayne, also, we ought to concede the impulse given at this time to investigate the sources of the Scottish antient common law.

In the beginning of 1726, the usual period of remaining senior curator of the advocates' library having expired, Bayne retired from the office, and the same year he published the first edition of Sir Thomas Hope's *Minor Practicks*—a work which, though delivered by the author to his son orally, it is said, at his morning's toilet, is remarkable for its legal learning, the breadth and boldness of its views, the acuteness of its observations, and the subtlety of its distinctions, but which had lain near a century in MS. To this work Bayne now added a *Discourse on the Rise and Progress of the Law of Scotland, and the Method of studying it.* In 1731 he published a small volume of *Notes*, for the use of the students of the municipal law in the University of Edinburgh. These *Notes* were framed out of the lectures delivered from the chair, and impress us with a very favourable opinion of the author's acquaintance not only with the Roman jurisprudence, but also with the antient common law. About the same time he published another small volume, which he entitled *Institutions of the Criminal Law of Scotland*, for the use of his students. The author of such works, distinguished for their modesty not less than for their learning, could not but exercise a salutary influence on the youth by whom he was surrounded; and his career, though short, was sufficient to prove his talent and diligence, and to make his chair an object of no inconsiderable ambition.

In June, 1737, Bayne's death was intimated to the faculty by the magistrates of Edinburgh (*Fac. Rec.*); and in the following month a leet of two advocates (Mr. Erskine and Mr. Balfour) was delivered by the faculty to the magistrates or their election of a successor.

Bayne married Mary, a younger daughter of Anne, only surviving child of Sir William Bruce of Kinross, by her second husband, Sir John Carstairs of Kilconquhar, and by her he had three sons and two daughters.

BAYONET. [See ARMS.]

BAYO'NNE, a considerable town in the south of France, in the departments of Basses Pyrénées (Lower Pyrenees) and Landes, 43° 30′ N. lat., 1° 30′ W. long. It is 531 miles S.S.W. of Paris, through Orleans, Châteauroux, Limoges, Bordeaux, and Mont-de-Marsan. There is an old road from Bordeaux to Bayonne more direct than that through Mont de Marsan, by which a considerable distance may be saved. This road leads through the pine forests of the Landes; but the deep sandy soil renders travelling very incommodious, which is probably the cause why this route has been laid aside for one more circuitous but more convenient.

Bayonne is a town of considerable trade, for which it is favourably situated, being at the junction of two navigable rivers, the Adour and the Nive, whose united streams fall into the Bay of Biscay two or three miles below Bayonne. By these two rivers Bayonne is divided into three parts. That part situated on the left, or south-west bank of the Nive, is called Great Bayonne, that between the two rivers is called Little Bayonne, and that on the north or right bank of the Adour is called the suburb of St. Esprit (*i.e.* of the Holy Ghost.) The latter is in the department of Landes, the two former in that of Basses Pyrénées. The entrance of the port is narrow, and a very dangerous bar crosses it, on which, in westerly winds, there is a violent surf. The harbour is however safe, the bar affording it shelter seaward, and it is well frequented. The name Bayonne is a compound of two Basque words, 'Baia' and 'Ona,' signifying good bay or good port, and indicates the estimation in which the harbour was formerly held.

Bayonne is fortified, and is in the first class of strong places. Each part of it is surrounded on the land side by an ancient wall, outside of which are the modern works. Great Bayonne has a castle flanked by four round towers, called the Old Castle; Little Bayonne has the New Castle, flanked by four bastions; and adjoining to the suburb St. Esprit is a citadel, the work of Vauban, which has been strengthened by works recently added.

Bayonne is a handsome place. The houses are well built of stone, the streets are wide, and the *places* (open spaces) adorned with good buildings. The different parts of the town communicate by several bridges, two over the Nive, and one handsome wooden bridge over the Adour. The numerous vessels, large and small, by which the rivers are covered, give animation to the scene. The public promenade is also very beautiful. Of the public buildings the Cathedral of Notre Dame may be mentioned, although there is nothing in its architecture which calls for particular notice. The Mint is also one of the principal edifices in Bayonne. The town has a school of navigation and also a theatre.

The manufactures of Bayonne are not important; that of glass bottles is the chief. The town is famous for hams, for the liqueur which bears the name of the village of Andaye, and for chocolate. In the preparation of the liqueur Bayonne is considered to rival Andaye itself. Shipbuilding is carried on with advantage, as the neighbourhood supplies the materials. The trade of the town is very considerable; drugs, wines (those of the neighbourhood are accounted excellent), brandies, and fir timber, are among its exports; also masts, which are floated down from the forests of the Pyrenees by the Nive and Adour, or their branches, and sent to Brest and other ports. Of the imports Spanish wool is the principal; the quantity brought in yearly is said to be about 20,000 bales. Bullion is also brought in from Spain. The coasting trade employs the greater part of the vessels which enter or leave the port of Bayonne; a few ships are engaged in the cod fishery, but there is no trade with the French colonies. The population of the town, in 1832, was as follows:

Bayonne town	13,008	whole commune	14,773
St. Esprit .	4,108	,,	5,895
Together . .	17,116	,,	20,668

When Expilly published his *Dictionnaire des Gaules* (in 1762), above half the population of St. Esprit were Jews, viz. 3500 out of 5800.

Before the Revolution Bayonne had only one parish church, the cathedral; for though there was in the suburb of St. Esprit a collegiate church, it was not parochial, as the suburb was in the parish of St. Etienne, the church of which is at some distance to the northward. There were in Great and Little Bayonne eight religious houses (of which three were for females), and in St. Esprit a Commandery of the Order of Malta, and a convent of Ursuline nuns. An abbey of Cistertian nuns was situated without the walls of that suburb.

Bayonne is the capital of an arrondissement, comprehending 491 square miles, or 314,240 acres, and containing, in 1832, a population of 78,411. It is also the see of a bishop, whose diocese includes the department of Basses Pyrénées, and who is a suffragan of the Archbishop of Auch.

D'Anville considers Bayonne to be the Lapurdum mentioned in the *Notitia Imperii*; but the correctness of his opinion is disputed or doubted by some. The origin of the see cannot be traced higher than the tenth century. The bishops of Bayonne bore the title Episcopi Lapurdenses, but this title, it is contended, only implies that they were bishops of the territory of Labour. Their diocese included some parts of Spain, but they were severed from it by the Pope at the instigation of Philip II., King of Spain, in the sixteenth century, and placed under the control of the Bishop of Pampeluna as the pope's vicar.

In the invasion of France by the allies under the Duke of Wellington, in 1814, the citadel of Bayonne was invested by a force under Lieutenant-General Sir John Hope. On the morning of the 14th April, several days after hostilities in the north of France—the then great scene of warfare—had been terminated by the abdication of Napoleon, a sortie took place from the entrenched camp formed by the French in front of the citadel. The attack, though repulsed, caused a severe loss (800 officers and men killed, wounded, or taken) to the besiegers. Sir John Hope was taken prisoner, and Major-General Hay, the general commanding the line of outposts, was killed.

Bayonne was the scene of an interview, in 1564, between Catherine de' Medici and the Duke of Alba, one of the chief officers of Philip II. of Spain, at which it has been supposed the massacre of the Huguenots or Protestants was devised, though not executed till seven years after, on the day of St. Bartholomew. When the massacre took place, however, D'Orthez, commandant of Bayonne, refused to execute the orders of the court. He replied to the king's order in these words: 'I have found, Sire, in Bayonne, only good citizens and brave soldiers, but not one executioner.' Bayonne was the scene of the arrest of Charles IV. and Ferdinand VII. of Spain in 1808.

BAYSWATER, one of the suburbs of London, denominated a hamlet, and situated three miles and a half west of St. Paul's. Like most of the other suburbs of the metropolis which retain their old denominations of villages and hamlets, Bayswater has of late years been much enlarged by the addition of new streets and houses. At the eastern extremity of Bayswater is the Queen's Lying-in-Hospital, a retired building surrounded by an extensive garden. The charity was originally established at Uxbridge in 1752, but was removed hither in 1791; it is supported by annual subscriptions, and affords assistance to poor pregnant women at their own houses, if within a limited distance, or receives them into the hospital. The tea-gardens in Bayswater occupy the site of the house and botanical garden of Sir Joseph Hill, whose various writings and high-sounding nostrums were popular in their day. In the neighbourhood is one of the conduits formerly used for supplying the city with water. It belongs to the City of London, and still serves to convey water by brick drains to some western parts of the metropolis. There is also a reservoir of some magnitude belonging to the Grand Junction Water Company at Bayswater. The population is not stated separately from that of the parish of Paddington, to which it belongs. (Lysons's *Environs of London*; Brewer's *Middlesex*, &c.)

BA'ZA, the Roman Basti, a city of Andalusia, in the kingdom of Granada, 37° 30′ N. lat., 2° 50′ W. long. It is situated near the river Guadalquiton in a valley in the Sierra de Baza, which, according to some geographers, is a branch of the Sierra Nevada. The *hoya* or valley of Baza is very productive in grain, fruit, hemp, and flax. The city, which is of very old construction, was taken from the Moors by Fernando the Catholic, in 1489, after a seven months' siege. Baza is a bishop's see, has a cathedral, three parishes, six convents, an ecclesiastical seminary, an hospital, and six inns. The population amounts to 11,486 inhabitants. At the distance of two miles from the city several interesting antiquities of the Augustan age, belonging to the city of Basti, have been dug up by the farmers. These monuments, on which a curious antiquarian would set a high value, are only dug from the earth to be buried in the house of some obscure farmer.

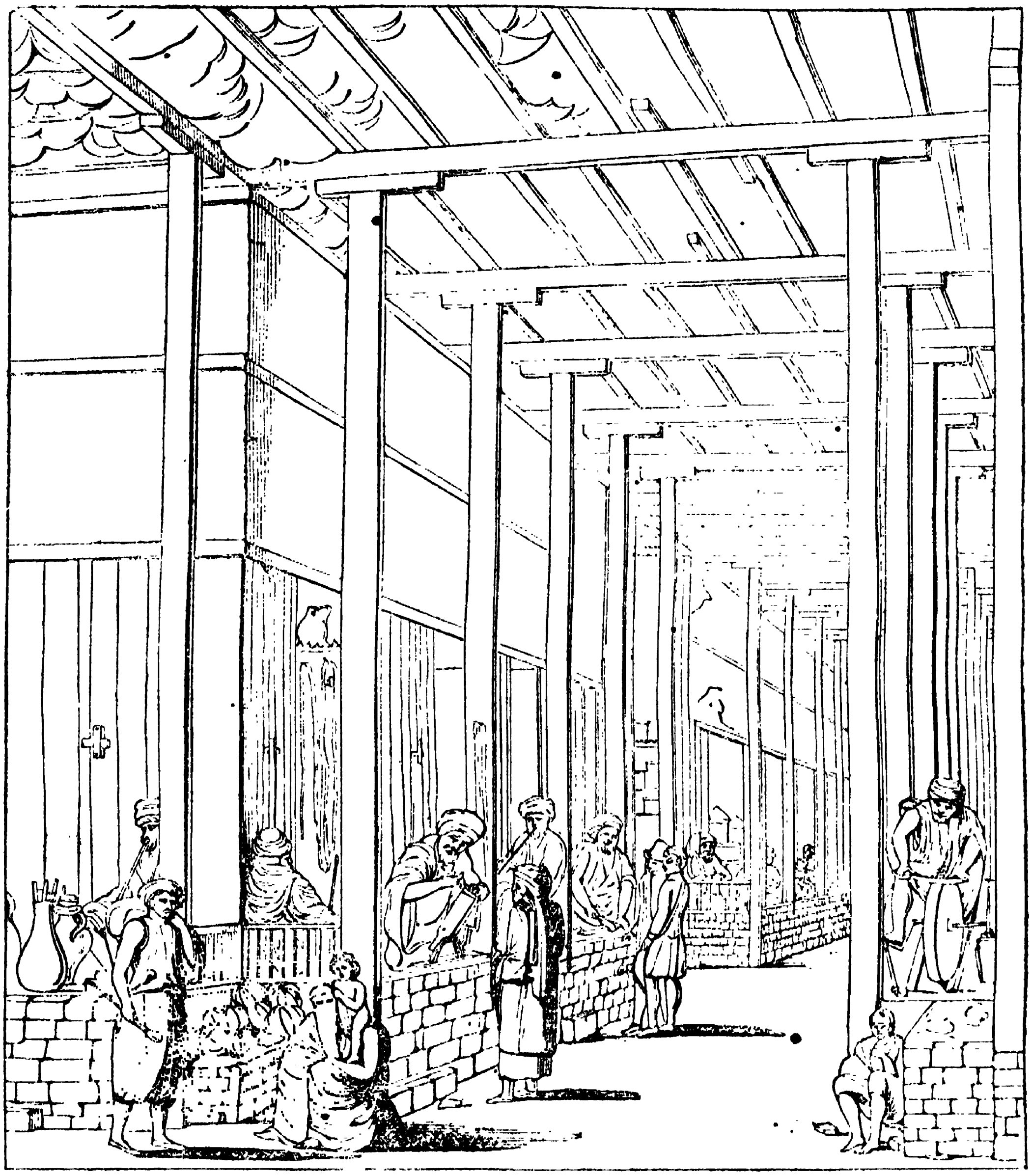
Baza is the capital of the district which bears its name, and comprises fifty-four towns and villages and three cities, besides the capital, viz., Purchena, Vera, and Mujacar. The Sierra de Baza abounds in trees, which supply the inhabitants with timber and fire-wood: it produces also lead in great abundance, as well as marble, the most celebrated of which is that of Macael. Six miles from Baza is a hot spring, called Los Baños de Benzalema (Benzalema's baths), the temperature of which is 30° Réaumur. The inhabitants of the district are exclusively employed in agriculture.

BAZAAR. The word *bazaar* is Persian, and its primary meaning is *a market, a forum*. In Turkey, Egypt, Persia, and India this term distinguishes those parts of towns which are exclusively appropriated to trade. In this exclusive appropriation they resemble our markets; but in other respects they approximate more nearly to our retail shops. We have interpreted the word in its large sense; for although the term bazaar is in this country commonly understood to mean an assemblage of shops or stalls under cover, yet in fact it equally applies to open places in which bulky commodities are offered for sale. Such places sometimes occur in eastern towns, and are used chiefly in the early morning, at least in summer, for the sale of vegetables and cattle. If a place in the open ground outside a town be commonly applied to this use, it will be called a bazaar, and will be distinguished, as in all other cases, by joining to the word 'bazaar' the name of the commodity sold. In large towns, however, such markets are generally near or in the midst of the regular covered bazaars; except the market for cattle, which is always outside or at the extremity of the town. In some places bazaars are rather extensive squares, the sides of which are lined with shops under arcades. In a few cases the covered ways branch off with some regularity from these squares as from a centre: and in one of the best specimens of the open market, at Kermanshah in Persia, the palace of the prince-governor occupies one of its sides. When, however, as in this and some other instances, the principal open area in the city is thus appropriated, its distinctive appellation of the *Maidan*, or square, is retained.

The regular bazaars consist of a connected series of streets and lanes, and, when of a superior description, they are vaulted with high brick roofs. The domes or cupolas which surmount the vaulting admit a subdued daylight; and as all direct rays of the sun are excluded, a comparatively low temperature is obtained. The description of a good bazaar in Persia is a description of a good bazaar in Turkey or India. Nevertheless, the Persian bazaars are rather more light and lively than those of Turkey. They are painted in many places, and sometimes decorated, particularly under the domes, with portraits of the heroes of the country, with representations of battles or hunts, with figures of real or fabulous animals, and with other subjects. The approaches to the bazaars are commonly lined with low shops, in which commodities of little value are exposed for sale. These approaches are sometimes open to the sky; but they are more generally covered in a rude manner with branches of trees, and leaves laid upon beams. In many of the provincial towns of Turkey and Persia, the bazaar, as a whole, would answer to this last description; and in others it is nothing more than a mud platform continued along the way side, about two feet above the footpath, on which little covered shops are raised, that are mere boxes, scarcely affording room for the vendor to sit down on a bit of carpet or felt in the midst of his scanty stock.

In the best specimens of the vaulted bazaar the passages are lined on each side with a uniform series of shops, the floor of which is a platform raised from two to three feet above the level of the ground, and faced with brick. As the vault springs from the front of the line of shops, they seem like a series of recesses, and the partition-walls between them appear like piers supporting the arch. These recesses are entirely open in front, in all their height and breadth; they are scarcely more than very small closets, seldom exceeding six feet in breadth, rarely so deep as wide, but generally from eight to ten feet in height, and occasionally more. But in the more respectable parts of large bazaars there is generally a little door in the back wall which conducts to another small and dark closet, which serves the purpose of a store-room. The front cell is the shop, on the floor of which the master sits with his goods all around him, the articles most in demand being placed so within his reach that he has seldom occasion to rise, which, if he is a Turk, he rarely does without manifest reluctance. Such a dealer offers a very singular contrast to our ideas of a shopkeeper, being the very personification of luxurious repose as he sits smoking his pipe; or, if in winter, when these berths are chilly and uncomfortable, bending over a brazier of burning charcoal. The neighbouring shopkeepers have much communication with one another, and generally exhibit as much alacrity in promoting the interest of a neighbour as can be compatible with attention to their own. Indeed, a stranger might be disposed to imagine that all the tradesmen in the same line of business are in a general partnership, so little anxiety does any one exhibit to obtain a preference, and so willingly does he inform a customer where he may obtain an article more exactly suited to his wants than he can himself supply. This is more apparent in Turkey than in Persia. Persian, Armenian, and Jewish shopkeepers are in general more civil and obliging than

Turks, and exhibit more anxiety to obtain custom. The writer has often been constrained by the former to turn aside and smoke of their pipes, and eat of their onions and bread, without being directly urged to make any purchase; but it is more pleasant to deal with a Turk, though he would not do this, because he deserves more confidence, yet not implicit confidence, in matters of purchase and sale. A French writer (M. Aubert de Vitry) says, 'It is not necessary to offer a Turk less than two-thirds of the price he demands; to a shopkeeper of any other nation one-half may be safely offered; and in the case of the Jews there is no limit to the abatement.' This is perfectly true; and no stranger in the East could have a better rule for his guidance in such matters.



[Turkish Bazaar, from the French work on Egypt.]

Business commences and terminates with daylight in oriental bazaars. No trade or handicraft employment is in general carried on in the East by candle-light. None of the shopkeepers or artizans reside in the bazaars. When it gets dark, every one shuts up his shop and goes home. The fastenings of the shops are very slight; but the bazaars are in general well watched, and frequently secured with strong gates. In very warm countries it is usual for the majority of the shopkeepers to close their shops at mid-day, and go home to have their lunch and enjoy a siesta. The bazaars have then a very deserted appearance. Larcenies in the bazaars are scarcely known in Turkey; hence the shopkeepers do not hesitate to leave their shops quite open, without any one in charge, during their occasional absences; but when a rather long absence is intended, and the goods are of great value, a net, like a cabbage-net, is sometimes hung up in front, or laid over the goods.

The peculiar principle of oriental bazaars is that all the shops of a city are there collected, instead of being dispersed in different streets as in Europe, and that in this collected form the different trades and occupations are severally associated in different parts of the bazaar, instead of being indiscriminately mingled as in our streets. Thus one passage of the bazaar will be exclusively occupied by drapers, another by tailors, another by cap-makers, another by saddlers, and so on. In the bazaars of Persia, and, although less usually, in those of Turkey, the shops of provisions for immediate use form an exception to the rule. The shops of cooks and bakers are dispersed in different parts of the bazaar; the preparations in the former seldom extend beyond soups, and a sort of sausage without skin, called *kuboob*, a highly-seasoned and savoury article, which is much relished both in Turkey and Persia. Not only are trades carried on, but handicraft employments are exercised in the bazaars of the East: and thus while one part is very quiet, another resounds with the hammers of carpenters, smiths, and shoe-makers. The stocks of the individual dealers are seldom of much value. It would be difficult to find a shop which contains a greater stock than that of a small retail tradesman in London; but an imposing effect is produced by the exhibition of the several stocks in a connected form, so that the whole of a particular street in a bazaar will appear as one great shop for the article in which it deals. This is the cause of the reported splendour and riches of an oriental bazaar. Of this kind of effect the bazaar for ladies' slippers in Constantinople is a very remarkable instance: such an extensive display on each side, through a long covered street, of small slippers, resplendent with gold and silver embroidery, and silk, and coloured stones, conveys an impression of wealth, luxury, and populousness which ten times the number of shops in a dispersed form would not give. Wholesale dealers have no open shops in the bazaars, but they have warehouses in it or in its vicinity, to which the retailers resort as they have occasion. These warehouses are frequently in a large house or khan, occupied in common by several wholesale dealers. The khans also, to which the itinerant merchants resort until they have disposed of their goods, are generally in or near the bazaars; and they frequently make use of the same building with the stationary merchants. The principle of association for facility of reference is the true principle of a bazaar; the vaulted covering is merely a circumstance of climate. Therefore Paternoster-row with its books, Monmouth-street with its shoes, and Holywell-street with its old clothes, are more properly bazaars than the miscellaneous shops assembled under cover, which are in London designated by the name.

Besides the regular business conducted in the bazaars by the professional shopkeepers, there is an under-current of irregular trade, highly characteristic of oriental manners. If a person not in business, or a stranger, has an article of which he wishes to dispose, he employs a crier, who takes it through the bazaar, proclaiming, at the top of his voice, its praises and its price. Many poor people also endeavour in the same manner, without the services of the crier, to dispose of such articles of their property, or produce of their industry, as they desire to sell. These are mostly persons who imagine they shall be able to obtain a better price from the purchasers or idlers in the bazaar than they have found the shopkeepers willing to give. There is also a class of sellers who exhibit a little stock of wares upon stools, in baskets, or on cloths spread on the ground. They generally deal in but one commodity, which they profess to sell on lower terms than the shopkeepers will take. It would seem that in respectable towns a preference is given to this mode of selling some one particular commodity. Much tobacco, and most of the little snuff that is used, are sold in this way at Bagdad; much opium is thus disposed of every morning at Tabreez in Persia; and at Constantinople many women post themselves in the bazaars, displaying embroidered handkerchiefs and other needlework, often wrought by the hands of ladies of quality, who are enabled by the produce to make a private purse for themselves, and purchase some little indulgences which they might not otherwise obtain. If the truth be told, at Constantinople no small portion of this supply to the bazaars of that metropolis is contributed by the ladies of the imperial seraglio.

In hot weather, oriental bazaars are traversed by men laden with a skin or pitcher, from which they deal out to the thirsty a draught of excellently filtered water. Sometimes payment, seldom exceeding the fourth of a farthing, is expected; but frequently the men are employed to distribute water gratuitously, by pious individuals, who consider it an act of charity acceptable to Allah.

The contrast between the deserted appearance of the streets in an oriental town and the thronged state of the bazaars surprises a stranger. The women, except those of the lowest class, go little abroad; and of the men, the idle resort to the bazaar for amusement or conversation; and those who are not idle generally have some business there in the course of the day, which collects the visible population much into that part of the town, until the approach of evening effects a more equal distribution. The bazaar is not only the seat of immediate traffic, but of all commercial business; there all public, mercantile, and private news circulates, and there only free discussion can be carried on, unrestrained by the presence of the emissaries of power who haunt the coffee-houses. Hence in the bazaar the timid becomes bold, and the bold insolent. Public measures are keenly investigated, and the popular voice is often loudly expressed even to the ears of princes or ministers if they appear in the bazaars, as they sometimes do. Through the medium of slaves, eunuchs, and other agents, a constant intercourse is maintained between the innermost recesses of the seraglio and the bazaar. This is particularly the case at Constantinople, and in the capitals of the Turkish pashalics, and it is doubtful whether any thing is transacted in the palaces at night, which is not known in the bazaars the next morning. This intercourse has often exercised an influence upon public affairs which none but the most minute inquirers into oriental history would suspect.

The various characteristic displays of oriental manners which the bazaars furnish, the nature of the goods exposed for sale, and the splendid appearance they sometimes make, the manner in which the artizans conduct their various labours, the endless variety of picturesque costumes which meet the eye, and the babel-like confusion of tongues, all combine to form a scene of unequalled singularity and interest. No traveller who does not, in some oriental costume, sedulously frequent the bazaars and make many little purchases for himself, ought to feel assured that he understands the people, or has materials for fairly estimating their condition. The remarks here made are the result of the writer's intimate personal acquaintance with the bazaars of the East.

BAZAS, a town in France, in the department of Gironde, 41 miles S.E. of Bordeaux, and 419 miles S.S.W. of Paris. It is on a rivulet which flows into the Garonne, a few miles to the N. of the town, 44° 27′ N. lat., 0° 13 W. long.

Under the name of Cossio it existed in the Roman times, and is mentioned by Ptolemy; but in the latter period of the Roman empire, the name of the people whose metropolis it was, the *Vasates* (called also Vasarii), prevailed over the older designation: we read in Ammianus Marcellinus, of Vasatæ, as a place of some consequence in Novempopulana: and in other authorities of Civitas Vasatas and Civitas Vasatica.

Bazas early attained the rank of a bishopric, which however it has now lost. A bishop of Bazas sat in the council of Agde in 506, and at the council of Orleans in 511. The bishop of Bazas was, during part of the tenth and eleventh centuries, the only bishop in Gascony, the towns having been destroyed by the Normans, and the cathedral being without clergy. During this interval he took the title of bishop of Gascony, *Vasconensis Episcopus;* but when the churches were again supplied with clergy, he shrunk into bishop of Bazas.

The town is situated on a rock, and has little in it that is remarkable except the cathedral, a fine edifice of the fourteenth century. In front of the cathedral is a *place* (or an open space), surrounded by a piazza. The walls of the town are in ruins. Among the manufactures are druggets, leather, glass, pottery, white wax, and wax-candles. The trade carried on is in the above mentioned goods, wood of all kinds, including timber for ship-building, and saltpetre. The population in 1832 was 2165 for the town, and 4255 for the whole commune.

The arrondissement of Bazas comprehends 697 square miles, or 446,080 acres. It had, in 1832, a population of 53,802.

The district of Bazadois was a subdivision of Guienne. (*Dictionnaire Universel de la France;* Piganiol de la Force, *Nouvelle Description de la France, &c.*)

BAZOIS, the name of a small district in France, forming, under the old division of that country, the eastern part of Nivernois, now included in the department of Nièvre. It comprehended several valleys, and was bounded on the N.E. by the mountains of Morvan. It is watered by several small streams, the Airon, Aron, or Avron, a tributary of the Loire, being the principal. It produces little corn, but there is abundance of good pasturage and wood. Coal is dug. The chief town of the district is Moulins in Gilbert. The dimensions are usually given as nine or ten leagues, or about twenty-seven to twenty-eight miles long, and as many broad.

BAZTA'N, or **BASTA'N**, a valley in the Pyrenees to the north of Pamplona, extending twenty-three miles from north to south, and two from east to west: but authorities differ considerably as to the width of the valley; Miñano states it to be fifteen miles wide, and the dictionary of the Academy only two. The truth probably lies between them. It is bounded on the north and east by France, and on the south and west by the valleys of Ulzama and Basaburua Menor. It is surrounded on the north and east by the heights of Otamburdi, Otsondo, Auza, Ariete, Izpegui, and Urrichiquia, and on the south by those of Ernazabal, Arcesia, Velate, and Oclumendi. Several streams descend from these mountains, and form in the valley a river, which is called by the inhabitants Baztan-zubi. This river, after it leaves the valley, receives the name of Bidassoa. The valley produces Indian corn, wheat, pulse, and flax. The meadows and forests are held in common. Every man is bound by law to plant a certain number of trees every year.

Baztan is the sixth partido or district of the merindad or province of Pamplona. It is governed by its particular fueros or privileges, which were collected in a body of rural laws called Ordenanzas del valle (laws or statutes of the valley), approved by the supreme council of Navarra in 1696. The inhabitants, in a junta-general held every three years, appoint three individuals, out of whom the viceroy of Navarra chooses one to hold the office of Alcalde. This officer is the civil and military chief of the valley, and also the judge in minor offences. He is also the president of the concejo, or common council of the capital. Every man in the valley is a soldier, and is bound to provide himself with arms and ammunition. It is the alcalde's duty to instruct the men in the management of arms, and every three years he holds a general review, on which occasion every man is obliged to appear with a musket in good condition, half a pound of gunpowder, and twelve bullets. In a privilege granted by Alonso I. of Aragon, to the town of Sangüesa, in 1132, he is entitled king of Aragon and Baztan. The Baztanese, afterwards, on the separation of Aragon from Navarra, became subjects of the kings of Navarra. At the battle of Las Navas de Tolosa they fought so gallantly that their king, Sancho VI., granted them a privilege in 1212, by which every native of Baztan was declared an hidalgo or gentleman. Any Spaniard from another province, who can prove a noble origin, is admitted to the rights of citizenship in the valley. The letters of citizenship are granted by the junta-general of the valley. The population of the valley amounts to 7065 inhabitants, distributed into fourteen towns and villages. The capital, Elizondo, is situated on the banks of the Baztanzubi, which divides it into two parts. According to Miñano it contains 1111 inhabitants. The principal buildings are the town-house, where the junta-general is held, and the Casa de Misericordia, or charity house, in which the poor and destitute of the village receive support and employment. This benevolent institution has ceased to exist for want of funds. The house was inhabited by some poor families of the town, and has been of late changed into a fortified place by the Carlists: but it is at present occupied by the troops of the queen (1835). The front of the town-house is ornamented with the names of the illustrious persons who at different epochs have made themselves conspicuous for their valour, or for other eminent services. These names are written on wooden scutcheons carved into the shape of a crowned eagle with two heads. The Baztanese speak the Basque language.

(See *Academia de la Historia, Diccionario Geográfico Histórico de España*; Miñano.)

BDELLIUM, commonly called a gum, but in reality a gum-resin, the origin of which is a subject of doubt. It would appear that there are two, if not more kinds, of bdellium, the source of one of which seems to be ascertained; the others are matters of controversy. The bdellium of the antients, said by Pliny (book xii. chap. 9) to be brought from Bactria and other parts of Asia, still comes from Asia. Adanson states that he saw in Africa the substance exude from a thorny species of *amyris*, called by the natives *niouttoutt*. From its resemblance to myrrh, the analogy is in favour of its being obtained from an amyris or balsamodendron. Indeed, according to the recent statement of Mr. Royle, bdellium would appear to be the produce of a species of amyris, or rather balsamodendron, a native of India, called by Dr. Roxburgh *Amyris Commiphora* (*Fl. Ind.* ii. p. 244), *Amyris Agallocha* (*Calcutta Catalogue*, p. 28), the native name of which is *googul*. (Royle, *Illustrations of the Flora of the Himalayah*, part vi. p. 176.) The opinion of its being obtained from a palm, either the *Lontarus domestica* (Gaertn.), or the *Borassus flabelliformis*, is very improbable. This substance occurs in masses of variable size and shape, sometimes as large as a walnut, in oblong or angular pieces of a yellow, red, or brownish colour. The clearest pieces are transparent; the odour is weak and peculiar; the taste bitter, balsamic, and resembling myrrh or Venice turpentine. It is tolerably brittle at the ordinary temperature of the atmosphere, but with a slight increase of heat the finer kinds may be kneaded between the fingers. Its specific gravity is 1·371. In potass it is completely soluble. Analysed by Pelletier, 100 parts yielded

Resin	59
Gum	9·2
Bassorin	30·6
Volatile oil and loss . . .	1·2
	100

John found also caoutchouc, sulphates, muriates, and phosphates of potass, and lime with salts of magnesia, but probably he examined a different sort from that of Pelletier.

Resembling myrrh in appearance, it also resembles it in its effects upon the human system, and is often fraudulently substituted for it; it is, however, weaker, while it is more disagreeable and acrid. [See BALSAMODENDRON.] It was formerly used in many compounds and plasters, such as *diachylon*. It is now disused in Britain; but is to be found intermixed with gum Arabic.

The Sicilian bdellium is produced by the *Daucus Hispanicus* (Decand.), the *D. gummifer* of Lamarck, or perhaps the *D. gingidium* (Linn.), according to Boccone (*Museo di Piante rare della Sicilia, &c.* tom. xx.), which grows on the islands and shores of the Mediterranean.

The Egyptian bdellium is conjectured to be produced by the *Borassus flabelliformis* (Linn.), the *Chamærops humilis*, or the *Hyphæne cuciphera* (Pers.)

The bdellium mentioned in the second chapter of Genesis is obviously a mineral, and has no reference to the substances above-mentioned. It is supposed to mean *pearls*.

BEACHY HEAD, in Sussex, is a high bluff chalk cliff, forming a remarkable headland in the British Channel, which may always be known by seven conspicuous white cliffs to the westward of it. There is a telegraph and station-house on the top; and a little farther to the westward, on that portion of the Head called Belltout Cliff, a temporary lighthouse was erected in 1828, which has been found so serviceable, that it has been replaced by a more durable one of stone. The lights, like the old one, revolve alternately bright and dark at intervals of two minutes: their elevation above the sea is 285 feet.

Caverns near Beachy Head.—There are six caverns, with entrances three feet wide, and flights of steps twenty feet in height, terminating in an apartment eight feet square, now cut in the cliffs, between Beachy Head and Cuckmere. A place called Derby Cave has also been repaired, by which means mariners, who may be unfortunately wrecked on that part of the coast, can find a place of refuge from the sea. There is no danger a quarter of a mile immediately off the Cape, but six miles to the eastward of it there are some dangerous rocks, on which the Royal Sovereign, a first-rate, once struck. (*British Channel Pilot*, p. 51.)

BEACON, a sign or token ordinarily raised upon some foreland or high ground as a sea mark. It is also used for the fire-signal which was formerly set up to alarm the interior of the country upon the approach of a foreign enemy. The word, as used in England, is derived from the Anglo-Saxon beacen or beacn, a sign or signal, whence bycnian, to show or point out. *Beac* or *bec* is the real root, which we still have in *beck*, *beckon*.

Fires by night, as signals, to convey the notice of impending danger to distant places with the greatest expedition, have been used in almost all countries. They are mentioned in the prophecies of Jeremiah, who (chap. vi. v. 1) says, 'Set up a sign of fire in Beth-haccerem, for evil appeareth out of the north, and great destruction.' In the treatise *De Mundo*, attributed to Aristotle, we are told (edit. 12mo. Glasg. 1745, p. 35), that fire-signals were so disposed on watch-towers through the King of Persia's dominions that, within the space of a day, he could receive intelligence of any disturbances plotted or undertaken in the most distant part of his dominions: but this is evidently an exaggerated statement. Æschylus, in his play of the *Agamemnon*, represents the intelligence of the capture of Troy as conveyed to the Peloponnesus by fire-beacons. During the Peloponnesian war we find fire-beacons (*φρυκτοί*) employed. (Thucyd. iii. 22.) Pliny distinguishes this sort of signal from the Phari, or light-houses placed upon the coasts for the direction of ships, by the name of 'Ignes prænuntiativi,' notice-giving fires (Plin. *Hist. Nat.*, edit. Harduin, lib. ii. sect. 73), these being occasional only, the phari constant.

Lord Coke, in his Fourth Institute, chap. xxv., speaking of our own beacons, says, 'Before the reign of Edward III. they were but stacks of wood set up on high places, which were fired when the coming of enemies was descried; but in his reign pitch-boxes, as now they be, were, instead of those stacks, set up; and this properly is a beacon.' These beacons had watches regularly kept at them, and horsemen called hobbelars were stationed by most of them to give notice in day-time of an enemy's approach, when the fire would not be seen. (Camd. *Brit.* in Hampshire, edit. 1789 vol. i. p. 173.)

Stowe, in his *Annals*, under the year 1326, mentions, among the precautions which Edward II. took when preparing against the return of the queen and Mortimer to England, that 'he ordained bikenings or beacons to be set up, that the same being fired might be seen far off, and thereby the people to be raised.'

The Cottonian MS. in the British Museum, Augustus I. vol. i. art. 31, preserves a plan of the harbours of Poole, Purbeck, &c., followed, art. 33, by a chart of the coast of Dorsetshire from Lyme to Weymouth, both exhibiting the beacons which were erected on the Dorsetshire coast against the Spanish invasion in 1588. Art. 58 preserves a similar chart of the coast of Suffolk from Orwell Haven to Gorlston, near Yarmouth, with the several forts and beacons erected on that coast.

The power of erecting beacons was originally in the king, and was usually delegated to the Lord High Admiral. In the eighth of Elizabeth an act passed touching sea marks and mariners (chap 13), by which the corporation of the Trinity House of Deptford Strond were empowered to erect beacons and sea marks on the shores, forelands, &c., of the country according to their discretion, and to continue and renew the same at the cost of the corporation.

Professor Ward, in his 'Observations on the Antiquity and Use of Beacons in England' (*Archæologia*, vol. i. p. 4), says, the money due or payable for the maintenance of beacons was called *Beconagium*,' and was levied by the sheriff of the county upon each hundred, as appears by an ordinance in manuscript for the county of Norfolk, issued to Robert de Monte and Thomas de Bardolfe, who sat in parliament as barons, 14th Edward II.

The manner of watching the beacons, particularly upon the coast, in the time of Queen Elizabeth, may be gathered from the instructions of two contemporary manuscripts printed in the *Archæologia*, vol. viii. pp. 100, 183. The surprise of those by the sea-side was usually a matter of policy with an invading enemy, to prevent the alarm of an arrival from being spread.

An iron beacon or fire-pot may still be seen standing upon the tower of Hadley Church in Middlesex. Gough, in his edition of Camden, fol. 1789, vol. iii. p. 281, says, at Ingleborough, in Yorkshire, on the west edge, are remains of a beacon, ascended to by a flight of steps, and ruins of a watch-house. Collinson, in his *History of Somersetshire*, 4to. 1791, vol. ii. p. 5, describes the fire-hearths of four large beacons as remaining in his time upon a hill called Dunkery Beacon in that county. He also mentions the remains of a watch-house for a beacon at Dundry (vol. ii. p. 105). Beacon-hills occur in some part or other of most counties of England which have elevated ground. The Herefordshire beacon is well known. Gough, in his additions to Camden, ut supr. vol. i. p. 394, mentions a beacon hill at Harescombe in Gloucestershire, inclosed by a transverse vallation fifty feet deep. Salmon, in his *History of Hertfordshire*, p. 349, says, at Therfield, on a hill west of the church, stood one of the four beacons of this county.

BEACONSFIELD, a small market-town of Buckinghamshire, in the hundred and deanery of Burnham, twenty-four miles W. by N. of London, and thirty-one S.S.E. of Buckingham. It is situated upon high ground, whence it has been supposed that its name is derived from a beacon that formerly occupied the spot. The town consists of four streets, the principal of which, forming part of the road from Uxbridge to High Wycombe, is nearly three quarters of a mile in length. The substratum on which the town stands is chiefly gravel, and the houses are built with flints or brick. The church, dedicated to All Saints, is built of flint and squared stones, and consists of a nave, chancel, and side aisles, with a tower at the west end. The remains of Edmund Burke, who resided and died at Gregories in this parish, are deposited in the church; and the churchyard contains a white marble table monument in honour of Waller, to whom the manor belonged, as it still does to his descendant. Hull Court, the poet's family mansion, is still in existence. The church, as well as the manor, was formerly attached to Burnham Priory. The living is a rectory in the archdeaconry of Bucks and diocese of Lincoln, valued in the king's book at 26*l.* 2*s.* 8½*d.*; the advowson belongs to Magdalen College, Oxford, which purchased it about the year 1705. Beaconsfield derives great advantage from its situation on the high road between London and Oxford; and considerable business in the sale of cattle is done at its market and fairs. The proximity of High Wycombe and Uxbridge is, however, said to have rendered the market of less relative importance now than in former times. The market-day is Wednesday, and the fairs are held on February 13th and Holy Thursday, the latter being for cattle. The number of houses in the parish was 341, according to the returns of 1831, when the population consisted of 1763 persons, of whom 891 were females.

(Lysons's *Magna Britannia; Beauties of England and Wales.*)

BEAD MOULDING. [See MOULDING.]

BEAD TREE. [See MELIA and ELÆOCARPUS.]

BEADLE, the messenger or apparitor of a court, who cites persons to appear to what is alleged against them. It is probably in this sense that we are to understand the *bedelli*, or under-bailiffs of manors mentioned in several parts of the *Domesday Survey*. Spelman, Somner, and Watts, all agree in the derivation of beadle from the Saxon byꝺel, a cryer, and that from biꝺ, to publish, as in bidding the banns of matrimony. The bedelli of manors probably acted as criers in the lord's court. The beadle of a forest, as Lord Coke informs us in his Fourth Institute, was an officer who not only warned the forest courts and executed process, but made all proclamations.

Bishop Kennett, in the Glossary to his *Parochial Antiquities of Oxfordshire*, says that rural deans had formerly their beadles to cite the clergy and church officers to visitations and execute the orders of the court Christian. Parochial and church beadles were probably in their origin persons of this description, though now employed in more menial services.

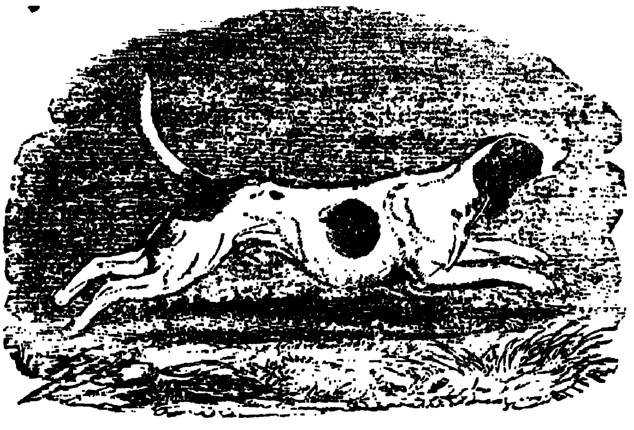
Bedel, or beadle, is also the name of an officer in the English universities, who in processions, &c., precedes the chancellor or vice-chancellor, bearing a mace. In Oxford there are three esquire and three yeomen bedels, each attached to the respective faculties of divinity, medicine and arts, and law. In Cambridge there are three esquire bedels and one yeoman bedel. The esquire bedels in the latter university, beside attending the vice-chancellor on public solemnities, attend also the professors and respondents, collect fines and penalties, and summon to the chancellor's court all members of the senate. (See Ducange's *Gloss.* in voce Bedellus: Kennett, *Paroch. Antiq.* vol. ii. Gloss.: *Gen. Introd. to Domesday Book*, 8vo. edit. vol. i. p. 247; *Camb. and Oxf. Univ. Calendars.*)

BEADS (Rosary Beads) are made of horn, ebony, ivory, glass, box-wood, and other materials, and are strung in chaplets used by the Roman Catholics for the purpose of counting their prayers. The Rosary is a series of prayers said to have been first instituted by St. Dominic about the year 1200, in honour of the Virgin Mary, and as an invocation to her for spiritual assistance. It consists of a repetition of the Ave Maria and the Paternoster or Lord's Prayer, both in Latin. It is divided into decads of ten Ave Marias, each decad being preceded by the Lord's Prayer, and terminating with the Gloria Patri. The full or great rosary consists of fifteen decads, but the common rosary, which is recited generally in the evening by pious Catholics, consists of only five decads. At the end of the five decads they recite the Creed, or Symbol of the Apostles, and afterwards (in Italy at least) the Litany of the Virgin, which is different from the Litany of the Liturgy. The rosary is a daily family evening prayer; the head of the family says the first part of each Ave Maria, and the other members repeat in chorus the remaining part. [See AVE MARIA.] 'The original rosary of St. Dominic is a recitation of fifteen decads of Ave Marias, preceded each by a Pater, each decad being devoted to the meditation of one of the mysteries of the life of our Saviour. The first five mysteries are those of the incarnation, nativity, &c., and are styled joyful mysteries. The next five are those of the passion and death, and are styled sorrowful. The remaining five are those of the resurrection, ascension, assumption of the Virgin, &c., and are termed glorious.' (Touron, *Vie de St. Dominic; Quindecim Mysteria Rosarii Beatæ Mariæ Virginis*, a R. Schiaminosso delin. atque incisa, Rome, 1609.) The common chaplet is called *Corona*, 'a crown,' in honour of the Virgin.

The beads are distinguished by their size and shape, those marking the Lord's Prayer being larger than those for the Ave Marias. Rosaries of very small glass beads are worn by pious Catholics round their necks. The object of St. Dominic was probably, while doing honour to the Virgin, to fix at the same time the attention of the pious on the contemplation of the principal events of the Saviour's life, by allowing a certain time, marked by the recitation of ten Ave Marias, to the meditation upon each event or mystery. The name of rosary is figurative: it means a chaplet of spiritual roses, divided into three sets, white, red, and damask roses, corresponding to the joyful, sorrowful, and glorious mysteries. Such are the allegory and its explanation. (*The Rosarie of our Ladie otherwise called our Ladie's Psalter*, Antwerp, 1600.)

The Turks and other eastern nations have also chaplets of beads made of amber or other materials, which they turn through their fingers while sitting in a listless mood, but not, as it seems, for any purpose of prayer. The Turkish chaplet is called 'Comboloïo.'

BEAGLE, a small well-proportioned hound, slow but sure, having an excellent nose and most enduring diligence, formerly much in fashion for hunting the hare, but now comparatively neglected, its place being occupied, where hare-hunting is patronized, by the harrier. [See HARRIER.]



[The Beagle.]

These were the little hounds so much prized by 'the good *old* English gentleman;' for, at a trifling expense, and greatly to the delight of the neighbouring rustics who followed on foot, he could keep his ten or eleven couple, not more than so many inches high individually, and, mounted on his easy pad, would generally make certain of killing his hare, though it frequently cost him two or three hours to perform the feat. During this protracted chase he had ample leisure for enjoying the sight of his admirably matched pack, running so well together that 'they might have been covered with a sheet,' and for gratifying his ears with their tunable cry.

The hare distanced them immeasurably at first, and, in the course of the run, she might be observed to sit and listen 'sad on some little eminence,' but

> ——— 'In louder peals, the loaded winds
> Brought on the gathering storm'—

and, after exhausting all her speed, shifts, and doublings, she almost always fell a victim to their persevering and destructive instinct.

A well-bred beagle of the proper size, which should not exceed that above-mentioned, is a very pretty and symmetrical variety. This symmetry (the term is used in relation to the purposes for which the dog is employed) was the result of much care among amateurs, who spared no efforts to bring it to what they considered the standard of perfection.

Some prided themselves on the diminutive but still effective size of their packs. Daniel and others have not forgotten to commemorate Colonel Hardy's 'cry of beagles.' They amounted to ten or eleven couple, and were always carried to and from the field in a pair of panniers upon a horse's back. Small as they were, they rarely failed, though they could never get near enough to press the hare in the early part of the run, to stick to her and worry her to death at last.

Such diminutive hounds are sometimes called 'lap-dog beagles' and 'rabbit beagles.'

The fairy pack above alluded to had a little barn for their kennel, where also their panniers were kept. The door was one night broken open, and every hound, panniers and all, stolen; nor could the disconsolate owner ever discover either the thieves or their booty.

BEAMINSTER, or BEMINSTER FORUM, a market-town in Dorsetshire, in the Bridport division of the hundred of Beaminster, 123 miles W.S.W. of London, and 14½ W.N.W. of Dorchester. It is situated on the river Birt, which issues from several springs running from the hills with which the town is surrounded. Beaminster is of considerable antiquity. In Domesday Book, Beminstre is classed among the lands belonging to the bishopric of Sarum. Begeminster was given by Bishop Ormund, in 1091, to augment two of the prebends of his cathedral. The parish consists of three manors, Beaminster Prima, Beaminster Secunda, and Beaminster Parsonatus, all of which are held by lease by the present lords under the church of Salisbury. Leland thus describes Beaminster in his time:—'It is a praty market town, and usith much housbandry, and lyith in one street from N. to S., and in another from W. to E. There is a faire chapelle of ease in this town. Netherby [Netherbury] is the paroch chirch to it, and Beminstre is a prebend to the chirch of Saresbyri.' The town was almost entirely destroyed by fire in 1644, while Prince Maurice was in quarters there. It was re-built by the assistance of parliament, but in 1684 was again consumed; and, finally, in 1781, upwards of fifty houses, besides barns, stables, and other buildings, were reduced to ruins. To these fires, however, the town is indebted for its present very respectable appearance, most of the houses being good modern buildings. The streets have lately been paved by a subscription of the inhabitants, and the shops and some of the houses are now lighted with gas. The church and free-school are the principal buildings of the town. The church is dedicated to the nativity of the Blessed Virgin, and although only a chapel of ease to the vicarage of Netherbury, is a large handsome structure, standing on an eminence on the south side of the town. It is supported in the inside by Gothic arches and pillars of Ham-hill stone. The tower is nearly 100 feet high, and is decorated with sculptures, illustrative of the woollen trade, for which the town was famous at the time they were executed: there are also figures of one or two of the kings, and a number of roses, of which tradition states that the figures are those of kings who reigned at the times that repairs were done to the church, and that the roses commemorate the union between the houses of York and Lancaster. The town has a commodious workhouse, which is maintained partly by the rents of a small estate, and partly by the poor-rates. There is also an almshouse, built about 1627 by Sir John Strode, and afterwards endowed by him and his daughter, Lady Joan Tuberville, for the maintenance of six poor women. The free-school was founded in or about the year 1684 by Mrs. Frances Tucker, for the education of twenty of the poorest boys in Beaminster, three or four of whom are to be apprenticed to the sea service. The estate with which this school is endowed was let in the year 1707, at 65*l.* a year, which is now increased to 160*l.*; the surplus has been employed in increasing the number of boys at the school from 20 to 100, and in providing fuel, which is sold to the poor at a reduced rate during the winter. The Rev. Samuel Hood, the father of Lords Hood and Bridport, was master of this school in 1715. The number of houses in Beaminster was 567 in 1831, when the population amounted to 2968 persons, of whom 1573 were females. During the year 1834, the town was visited with an extraordinary mortality, owing principally to the small-pox and measles, which raised the proportion of deaths to one in twenty-six on the whole number of inhabitants. The inhabitants are chiefly engaged in the manufacture of sail-cloth, of iron, tin, and copper wares. The market is held on Thursday, and there are fairs on April 14, September 10, and October 9. The quarter-sessions were held here in the reign of Elizabeth and the seven first years of Charles I., but they were afterwards removed to Bridport. (Hutchins's *History and Antiquities of the Counties of Dorset*; *Beauties of England and Wales*; *Communication of a Correspondent, &c.*)

BEAMS. [See MATERIALS, STRENGTH OF.]

BEAN. [See FABA, PHASEOLUS, and DOLICHOS.]

BEAN, a leguminous plant, extensively cultivated in the garden and in the field, classed by Linnæus in the *Diadelphia Decandria*, and by Jussieu among the *Leguminosæ*. There are two distinct kinds of beans cultivated; the one is called the *Faba vulgaris* or *Vicia Faba*, which is our common garden and field bean; the other is the *Phaseolus vulgaris*, the French bean, haricot, or kidney-bean. We here consider them only in an agricultural point of view.

The common bean, of which there are several varieties, bears a pod containing several oblong rounded seeds, which are used in the soft young state for the table, and in the hard dry state for domestic animals chiefly, either whole or ground into meal. In some places bean-meal is mixed with other meal in making coarse bread; or the beans are boiled into a mess with fat meat, in which state they are very palatable and nutritious. The bean came originally from the east, and was cultivated in Egypt and Barbary in the earliest ages of which we have any records. It spread thence into Spain and Portugal, from whence some of the best varieties have been introduced into this country. The most common varieties of garden beans are the Windsor, the Toker, the long-pod, and the Magazan, all productive and well tasted. In the field the tick bean, the common horse bean, and the small Dutch, or Heligoland bean, are preferred, being hardy as well as productive. The long-pod is occasionally sown in the field, the Magazan and broad Windsor bean seldom.

There is no plant in which the transformation of the cotyledons into seed leaves is more readily traced than in the bean. The Windsor bean, in particular, from the size of its lobes and distinctness of its vessels, is admirably adapted for observation, the parts being readily distinguished by the naked eye. If a bean is planted in moist earth or soaked in water, in a moderate temperature, the cotyledons will swell and soon burst the skin which envelopes them, separating into two lobes, which open like the shells of an oyster. In the part which forms the joint an oblong body will appear, which is the embryo stem of the plant. This increases rapidly in the earth, and pushes a root downwards, and a stem upwards, which latter carries the lobes with it till they rise above the ground, when they expand, and are transformed into seed leaves. It is curious to observe the force of vegetation in the young bean when it is, as it were, imprisoned in a strong soil hardened at the surface, as may be seen when a path crosses a field of beans newly planted; the cotyledons, under these circumstances, are drawn into the crevices made by the young stem, where they often remain held fast till the first shower releases them. The change in the cotyledons deserves particular attention. As soon as the seed swells by imbibing moisture, the oxygen, which is always present in the atmosphere and in water, acts upon the farinaceous substance in the seed, and takes a portion of carbon from it producing carbonic acid, which is absorbed by the surrounding plants, or flies off in the state of gas: by this loss the remaining substance becomes a mild fluid emulsion, analogous to the milk of animals, which, being taken up by the minute vessels of the radicle, nourishes and increases them. It is this alone which produces the first growth; the earth is the mere cradle to protect the young plant and to keep it moist, by preventing the too rapid evaporation which the heat and light of the sun would otherwise produce: when the ground is entirely deprived of moisture, vegetation necessarily ceases. The cotyledons are the reservoirs of nature to supply proper food for the plant in its infant state, as the mother's milk does in animals of the class of mammalia, and the yolk of the egg in birds and oviparous animals. In proportion as the farina in the lobes is gradually exhausted new vessels appear through the substance of the lobes, conveying the newly formed juice from every part of them into the root and stem, and, at last, the cotyledons are transformed into seed leaves. The fibres of the roots are by this time completely formed, and their extremities, called *spongioles*,[*] from their appearance when minutely examined, have acquired the power of absorbing nourishment from the soil. The plant may now be said to be weaned. The stem is then considerably advanced in growth, having put forth new leaves of a different form from the seed leaves: these last, having now performed their part, wither and soon fall off; if they are removed before this period, the plant, having lost its nurse, languishes and dies.

The bean at this stage of its growth requires particular attention. If the soil is rich and well prepared, it will grow rapidly and luxuriantly, and be soon out of reach of insects or weeds, and capable of resisting the varying influences of the atmosphere; but if the soil is poor and parched, and the supply of nutritive juices is scanty, the plant will soon show weakness and disease, and the only way to prevent a total failure of the crop, is to supply by art the deficiency of nature. In very poor soils manure may be applied in a liquid state, or as a top-dressing: in those which are not exhausted, tillage alone will enable the roots to spread, and give them a wider range to seek their food in. The weeds being destroyed, the whole powers of the soil are reserved for the crop; and the air charged with fertilizing vapours being allowed to penetrate the surface, and being retained in the interstices of the soil, greatly assists in invigorating the vegetation. These are the principles on which is founded the whole culture of leguminous plants, whether in the garden or the field. Where labour is not spared and the produce is valuable, as where vegetables are raised as a kind of luxury for the tables of the rich, the greatest attention is paid to the cultivation of beans, so as to have them early and in regular succession during the whole summer. They are even occasionally raised by artificial heat. In general they are sown or planted, at various times, from the beginning of winter to the middle of summer, but they must be protected from frost in the first case, and from too great heat and drought in the latter. They are set in rows with wide intervals, which are kept dug and clean, and in which lesser vegetables are advancing in growth, to be sheltered by the beans, and to succeed them when removed. In order to strengthen the pods already formed, as soon as those which are near the bottom of the stem are filled, the tops of the plants are cut off, and the beans are gathered when the seed has acquired sufficient consistency to be taken from the shells, before they have acquired any farinaceous qualities. One crop is made to succeed another by regulating the times of sowing; and thus beans are gathered for the table from May to November, or till the frosty nights check the growth of the plant. The cultivation of the field bean is only as perfect an imitation of the garden culture as circumstances will permit. As only one crop is required, and that in a perfectly ripe state, when the seeds are fully formed and hard, they are sown at one particular season, so as to avoid the danger from frosts and ungenial weather in spring, and at the same time to have the crop ripe in good time to be harvested before the cold and wet season sets in. The usual mode is to drill them by a machine, at the distance of from twenty to thirty inches, according to the richness of the soil, or to dibble them by hand, either singly or by putting four or five beans in each hole, increasing the distance of the holes from six to twelve inches. Beans are tolerably hardy, and will bear moderate dry frosts; but they suffer much from alternate frosts and thaws, which in this climate are so common in February. The end of February, or the beginning of March, is therefore generally preferred for bean-sowing. When the season is remarkably mild, as was the case in 1834, early sowing is a great advantage. The writer of this article planted a field of beans on the 1st January 1834, in a soil duly prepared; they were reaped in August, and produced a very good crop: his neighbours, who planted their beans in March, had not half the quantity on equally good land, owing to the dryness of the summer. But this was an experiment which succeeded: had severe weather come on in February, the whole crop might have been lost. As a general rule, beans may be sown from the middle of February to the middle of March. The sorts usually cultivated in the fields are the tick bean, the horse bean, and the small Dutch or Heligoland bean. In some situations the Magazan and the long-pod have produced good crops in the field: the first three are however best suited for general cultivation. There are several varieties of these, which differ but little in their appearance; experience is the best guide in choosing the seed which suits particular soils and situations. The small round regular-shaped beans are generally preferred, as obtaining the best prices in the markets, especially in large towns, where there is a great consumption of beans by hard-working horses.

The soil best adapted for beans is a rich strong loam, such as produces good wheat. In such a soil the produce is sometimes fifty or sixty bushels per acre, but an average crop, on moderate land, is about half that quantity. On very rich land beans have produced extraordinary crops, by being sown broad-cast and very thick, the stems being drawn up to a great height in favourable seasons. A small field of very rich land, in the county of Sussex, was sown in the year 1832 with four bushels of the small tick bean, which came up so thick, that the proprietor thought of thinning out the plants by hoeing; but he was advised to see what the produce would be, and when they were threshed out, there were ten quarters and one bushel of beans. He had the ground accurately measured, and it was found to be one acre and twenty-nine perches, which makes the crop above sixty-eight bushels per acre. They completely smothered all weeds, and the subsequent crop of wheat produced five quarters to the acre; but this particular example of sowing beans broad-cast we do not hold up for general imitation. By cultivating the beans in rows, and by careful hoeing and manuring, alternate crops of wheat and beans may be raised for many years, without intermission, or any necessity for change or fallow: this has been long the practice in the richest part of Kent. In this case the beans must be drilled or set in rows, with intervals of from twenty-four to thirty inches between the rows; and the intervals must be repeatedly stirred and hoed with proper instruments, so as to prevent the growth of weeds and keep the soil in a perfectly clean and mellow state; the weeds which rise in the rows are removed by hand. Immediately after bean harvest the land is scarified, or skimmed over with a plough having a very broad share, whence the operation is sometimes called *broad-sharing*. All roots of weeds and the remains of bean-halm are collected and burned, or put in a heap with quicklime, to be converted into manure. The ground is then ploughed once or several times, according to circumstances, and wheat is sown about the month of October, either broadcast or by means of a drilling machine, in rows ten or twelve inches asunder, which gives greater facility for hoeing and weeding the crop when necessary. The wheat which follows beans is generally good and heavy, and seldom runs to straw. After wheat-harvest the stubble is ploughed up and turned in with a very deep furrow; the land is harrowed flat, and a good coating of manure is put on in a moderately rotten state, and this is covered with a shallow ploughing: the land is well water-furrowed and left so till spring, when the beans are drilled in the mellow surface produced by the winter's frost. This is the most approved practice; but many experienced farmers vary it according to the varieties of soil, or according to difference of opinion. Some put on manure for the beans in spring, and some drill the beans in every second or third furrow after the plough; but all good farmers agree in manuring the land for the beans and carefully hoeing them. It is evident that a different method is required in different soils, varied according to their texture and situation. Alternate crops of wheat and beans can only succeed, for any length of time, on soils peculiarly favoured. In general, a change of crops and occasional fallows, will be indispensable to keep the land perfectly clean and in good heart.

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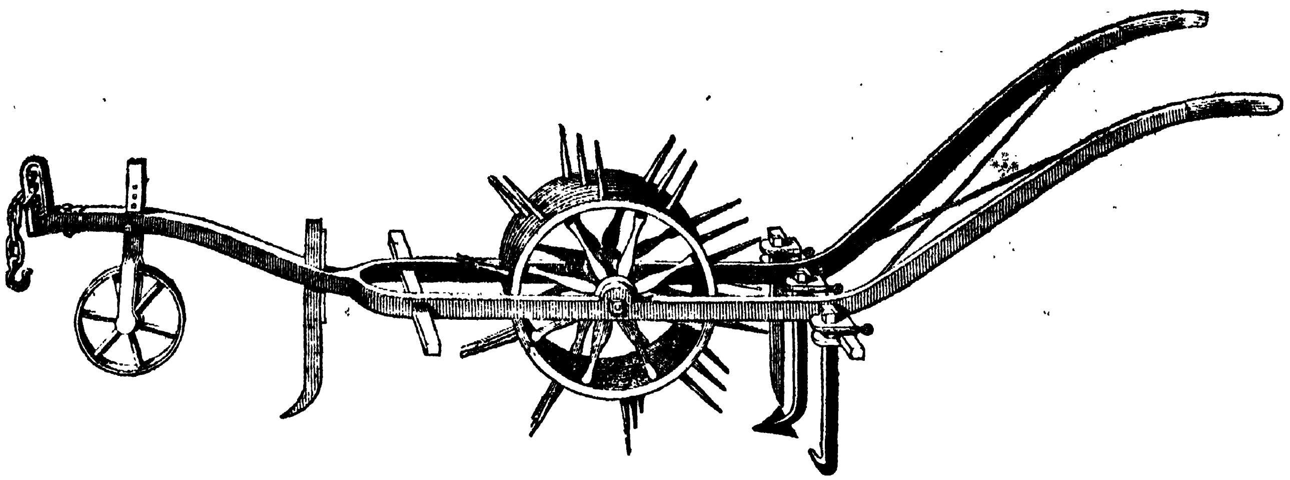
[*] *Spongioles*. At the extremities of the smallest ramifications of the roots may be seen, by means of high magnifiers, small bodies, which seem to be enlargements of the minute fibres of the root: they are called *spongioles*, from their resemblance to a *sponge*. Their use is to draw in the juices, by which the plant is sustained and increased. They possess a vital power, by which they more readily absorb some fluids than others, and are by some thought to have a power of selection, as the lacteals have in the intestines of animals. [See ROOT.]

In cold wet soils beans require great care to ensure good crops. Although they will grow well and seem to flourish in the stiffest and most unsubdued clays, they will seldom produce much at harvest, unless the land has been well prepared and the cultivation managed with skill. There is no better criterion of the experience and industry of the farmer of cold, wet clays than the appearance of his beans at harvest; and he may be judged by this crop, as the farmer of light, sandy soils may be judged by his turnips. The cultivation of these two opposite kinds of inferior soils will, in general, be profitable or otherwise in proportion to the produce of the beans in the one and the turnips in the other; the first being a substitute for clean fallow, and the latter the foundation of all the succeeding crops. The bean, by its strong and penetrating root, opens the stiff soil to the influence of the atmosphere, by which the surface is dried and at the same time mellowed. Although the nutritious matter in a good crop of beans is great, and almost equal to that obtained from a crop of wheat, it exhausts the soil much less: its succulent stems and leaves absorb much nourishment from the atmosphere, and the latter falling off and decaying, restore carbon and mucilage to the soil, and make up for the inferior quantity of manure produced by the bean-halm in comparison with wheat straw. There is perhaps no crop, bearing seed, which gives so great a return with so small an expenditure of the nutritive juices of the soil; and certainly none that repays manure better, or leaves the land in a better condition for wheat or oats. It is a very common practice to plough a stiff soil in spring only once, after it has borne clover, grasses, or wheat, and to drill beans in the furrows immediately after the plough, by hand or by an instrument; in this case it is best to deposit the beans as near the angle of the furrow as possible, and in every second furrow only, that they may rise regularly at a proper distance. In spite of the tough slues which the plough turns over in a mass, the force of vegetation in the bean makes it pierce through them, and, under favourable circumstances, a tolerable crop is sometimes obtained; while the more industrious neighbour, who has tilled his land in autumn and again in spring, by repeated ploughings, and made it fine and mellow, may be disappointed in his crop by untoward variations of weather. The slovenly farmer then laughs at the more perfect system of the other, pretending that it is wrong to work strong soils so much and make them *too fine*, as the term is. Thus the progress of a whole district in rational and improved culture is arrested or checked by the apparent evil of frequent ploughing. But the conclusion is founded in error. There can be no rule better confirmed by experience than that adhesive soils should be stirred and divided as much as possible; but this must be done with due regard to circumstances and seasons, and the differences in soils: chalking, marling, or manuring, are necessary, in order to prevent the divided soil from *setting* into a hard compact mass. Light coloured clays which consist of siliceous sand and argillaceous earth only, without any intermixture of other substances, set the harder in drying the more they are stirred; after being ploughed they soon have the appearance of stripes of unburned brick; and if a heavy shower has fallen after the land has been harrowed, they become hard like a barn floor. It is of no use to pulverise such land, until its texture is altered by chalk, marl, dung, or ashes; and the safest way is not to stir it too much, as no good crop can be expected, at all events, till it be ameliorated. To prepare a middling stiff soil for beans, it should be ploughed into high and narrow lands in autumn, with numerous and deep water-furrows, so that no water may lie on any part of it, and, if possible, it should be manured with long dung before it is ploughed. In spring, if there has been some frost, the surface will be loose and mellow; in this the beans should be drilled or dibbled by hand, and a time should be chosen for hoeing them, when the ground is neither wet nor dry, so that the hoe, whether hand-hoe or horse-hoe, may penetrate two or three inches below the surface to open the soil and destroy the weeds. The hoeing of the beans is a most essential part of the culture, and according as it is well or ill executed the land will produce more or fewer crops after it without its being necessary to have recourse to a fallow. Objections have been made to the use of the horse-hoe and scarifier between the rows in stiff soils, because, when the ground is dry and caked, the hoe raises large clods and lays the roots bare, sometimes even destroying the plants. But there are means of preventing this: if the ground is repeatedly hoed when not quite dry, it will not bind into a hard crust or rise in clods; and should a sudden dry wind, after much rain, bake the surface in spite of every attention to it, a spiky roller, of such dimensions as to work between the rows, will effectually loosen the soil, so that hoes and grubbers may follow without inconvenience. We give a drawing of such an instrument, which has been found very effective.

The cylinder may be used with or without the spikes, or may be removed entirely; the instrument then becomes a scarifier or grubber, according to the shape of the coulters which are fixed to it. The front wheel is of use to move the whole instrument upon, by lifting the stilts or handles in the manner of a wheelbarrow, at the end of the rows, when the horse turns out of one row into another. The cross bar on the frame before the roller is to fix hoes or coulters on, when the roller is taken away.

When the beans have pushed their stems, and the proper leaves appear above the seed leaves, the intervals should be carefully hoed, and, where it is practicable, three or four bushels of gypsum per acre may be sown, if the soil does not already contain this substance, and it will greatly stimulate the growth. The mode of its operation is not exactly known, but experience has proved its utility. [See MANURE and GYPSUM.] A very small quantity of gypsum seems to stimulate the growth of all leguminous plants and clovers, but if this quantity be already present in the soil no additional quantity seems to have any effect. It has been recommended to cut off the tops of the plants when the lower pods are set, as is frequently done in garden culture, to accelerate the filling of them, and to prevent useless blossoms from drawing the



[Roller with Spikes.]

nourishment to the top. The reason for doing this in gardens is, that when a plant has borne pods a certain time it is most advantageous to remove it, and the top blossoms, of course, never come to perfection. In the field this is not the case, there being no succession of plants; and, unless the top blossoms are very late, or the black dolphin (aphis) begins to appear, which is shown by the honey-dew on the top shoots, no advantage is gained by topping the plants, and the labour is thrown away. When the leaves of the beans begin to lose their green colour, and the pods to turn black, the crop should be reaped with the sickle, and made into small sheaves, tied with straw bands or tar twine, and set up in the field to dry. In some places pease are sown mixed with the beans, or the headlands are sown with pease, the halm of which is used to tie the beans with; but pease cling round the bean stalks and impede the setting of the pods; they also interfere with the hoeing and weeding, so that the practice is not to be recommended. Pease require a lighter soil and are best sown separately, except when they are sown broad-cast mixed with beans, in order to be mown in a green state as fodder for cattle or for pigs. Sowing beans for this last-mentioned purpose is not much practised in England, but is found very useful on the Continent, especially in Flanders; in this case they are mown like tares soon after the pods are formed. In order to have a succession of this green food, they should be sown at different times, with a week or fortnight's interval. By this means a great deal of grass is saved, which may be reserved for hay; the cattle fed in the stables or yards thrive well on this food, and produce a quantity of rich manure, chiefly in a liquid state, which fills the tanks and reservoirs which we have repeatedly mentioned as indispensable appendages to every good farm-yard. By having winter tares when the turnips are consumed, pease and beans after the first crop of clover, and summer tares to succeed them, cattle may be fed in the stables all the year round with great advantage, the land may be tilled at the best season of the year, and prepared for wheat, as well as by a clean fallow, while the green crop will fully repay all the expenses. Three bushels of beans and two of pease mixed together are required per acre when sown broadcast, or drilled in each furrow after the plough. It is often advantageous to cut in a green state those beans which were sown for a general crop, when food for pigs is scarce. They will go nearly as far in this way in feeding store pigs as the beans would have done when ripe, and the ground is left in a much better state for the following crop.

Although beans grow best in a rather heavy soil, they are often profitable on much lighter land, especially after clover ley or grass, which is broken up after being depastured two or three years. This is an excellent preparatory crop for wheat, and better than oats, which leave such land full of weeds. In this case the land should be carefully ploughed up. For this purpose a skim-coulter, which has a small wing attached to it, to slice off the grassy surface of the land and turn it under the furrow, is a most useful appendage to the plough. This makes very clean work, and a heavy roller drawn across the stitches or lands leaves the whole surface compact and solid, keeping the moisture from evaporating and facilitating the slow decomposition of the roots of the grass. Thus a very good and clean crop of beans may be obtained. If the soil should be exhausted or very poor, a good coat of manure spread over the grass and ploughed in will be a great advantage to the beans, and to the wheat which is to follow. On moderately light loams the most profitable rotation of crops is that of turnips, barley, clover, beans, wheat; or, if it is in a rich state, turnips, barley, clover, oats, beans, wheat, beans. When land is in good heart beans are often added to any rotation after wheat or before it, and the fallow is thus removed a year farther on. This is likewise done when it is intended to change the course of crops; because beans are considered the least exhausting of the crops which are allowed to ripen their seeds, and this practice is far less hurtful than the too common one of taking another crop of oats after the wheat, by which more harm is done than the value of the crop can compensate for.

The diseases to which beans are subject are, the mildew, which is a minute fungus that grows on the stems of leaves, and is caused by cold fogs and frequent sudden variations of weather, and the black dolphin, an insect of the aphis tribe, which appears first in the form of a honey-dew on the tops of the plants. For the mildew no remedy or preventive has yet been found. Whenever it has attacked the plants generally, before the pods are filled, the best method is to cut down the crop in its green state; and if it cannot be consumed in the farm-yard, to plough it into the ground, where it will decay rapidly, and be an excellent manuring for the succeeding crop of wheat. If allowed to stand, the crop will not only be unproductive, but the weeds will infest the ground, and spoil the wheat crop by their seeds and roots, which will remain in the soil. Whenever the tops of the beans begin to be moist and clammy to the feel, it is the forerunner of the aphis. They should then be immediately cut off, and this, if done in time, may save the crop from the ravages of the insects; but the most effectual way to prevent any disease from attacking the plants in their growth is to have the ground in good heart, and well tilled; to drill the beans at a sufficient distance between the rows to allow of the use of the horse-hoe, and thus to accelerate the growth of the plants, and enable them to outgrow the effect of incipient disease, which seldom attacks any but weak plants.

The principal use of beans is to feed horses, for which purpose they are admirably adapted, and far more nourishing than oats. They should be bruised or split in a mill, and given to horses mixed with hay and straw cut into chaff; this will ensure proper mastication and prevent that thickening of the wind, as it is called, caused by indigestion, which makes beans alone not so well adapted for the food of hunters and race-horses. Great quantities of beans are consumed in fatting hogs, to whom they are given whole at first, and afterwards ground into meal. Bacon hogs may be fatted entirely on beans and bean-meal; but as this food makes the flesh very firm, it is not so well adapted for delicate porkers. In the last period of their fatting, therefore barley-meal is usually substituted for bean-meal. Bean-meal given to oxen soon makes them fat, and the meat is far better than when oil-cake is used for that purpose: mixed with water and given as a drink to cows it greatly increases their milk. A small quantity of beans is generally mixed with new wheat when ground to flour: the millers pretend that soft wheat will not grind well without beans, and they generally contrive that there shall be no deficiency in the necessary proportion. Thus a quantity of beans is converted into what is considered as wheaten flour-

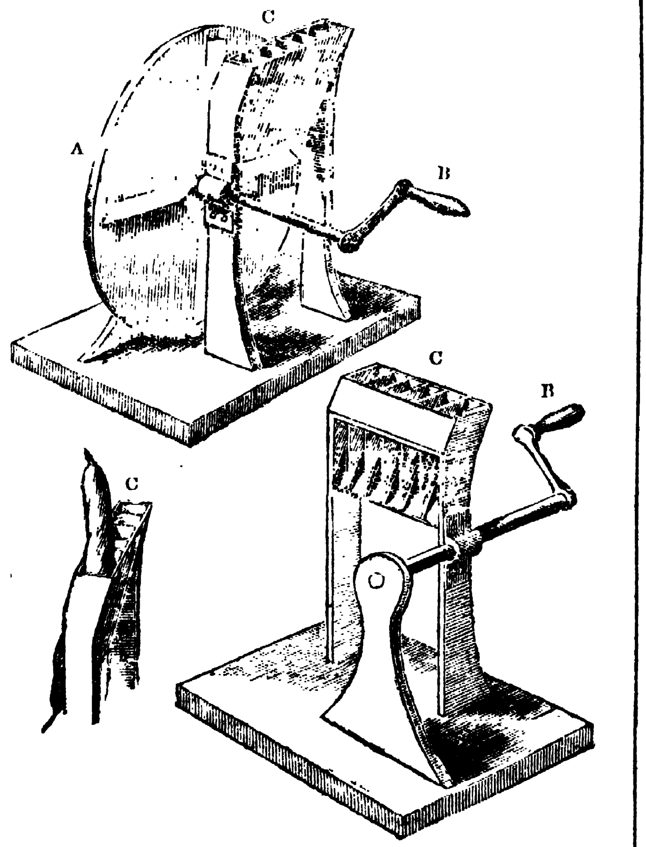
This practice is well known to all bakers and dealers in flour; and as there are means of discovering the quantity of bean-meal in the flour, the ignorant and unsuspecting only are deceived, and the price of the flour to the skilful purchaser varies according to the quality.

The proportion of nutritive matter in beans, compared with other grain, is, according to Einhof, as follows:—

	By weight.		Or in a bushel.
Wheat . . .	74 per cent.		about 47 lb.
Rye . . .	70	„	„ 39
Barley . .	65	„	„ 33
Oats . . .	58	„	„ 23
Beans . .	68	„	„ 45
Peas . . .	75	„	„ 49
French beans	84	„	„ 54

The French bean, kidney bean, or haricot bean (*Phaseolus vulgaris*), is chiefly cultivated for its tender and succulent pod, being one of the most esteemed vegetables for the table. The varieties are innumerable, differing slightly in their qualities: they may be divided into two distinct kinds, the dwarf and climbing; the former are the earlier, the latter the more productive. French beans are much less hardy than the common beans; a very slight degree of frost will destroy them entirely. The early sorts are therefore sown in sheltered situations, and occasionally protected by glass frames or mats. The climbing beans require the support of sticks or wires, round which they twine as they grow, with this peculiarity, that the coils turn round the support from the right to the left, contrary to the growth of some indigenous twisting plants, which turn from the left to the right, following the apparent diurnal motion of the sun.

The French bean, as an esculent vegetable, is wholesome and nutritious in a fresh state, and may be readily preserved for winter store or sea voyages by salting in casks. For this purpose the large, flat-podded, Dutch white runner is preferred. In Holland and Germany, where large quantities are salted in almost every family, a machine is used for cutting them expeditiously, which greatly resembles a turnip slicer, and may, with a slight alteration, be used also for slicing cabbages when making the national German preparation of sour krout (*sauer-kraut*). It consists of a wheel or disk, A, in which two or four knives are set at a small angle with the plane of it, so as to shave off a thin slice obliquely from the beans, which are held in a box, C, with several partitions in which they are kept upright, so as to slide down in proportion as they are cut: thus six or eight beans are sliced at once, and very rapidly, merely by turning the handle B, and supplying the box with beans in succession. The sliced beans fall on the table below, and are immediately put in a cask with alternate layers of salt. When the cask is full and well pressed down, a round board is put over the beans and a heavy weight upon it. As the beans are compressed, and begin slightly to ferment, the liquor is poured off, some fresh salt is strewed over the surface, and a linen cloth is pressed close upon it to keep out the air; the round board and weight are put over the cloth, and so the beans remain till wanted for use. When any are taken out they are washed in soft water to take out the salt, and gently stewed with a little gravy, or with milk and a piece of butter. They form a very wholesome vegetable dish at a time when fresh vegetables are scarce. The dried seeds are also boiled after being soaked in water for some time, and are usually mixed with the preserved green beans in the same dish. This use of the French bean is not common in England, but when we take into consideration that they are extremely wholesome and nutritive, much more so than pease, and that they are an admirable corrective of the oily qualities of animal fat by their farinaceous qualities, we shall regret that both the culture and the use of them in the dry state are not extended for the benefit of the labouring part of the community. The cultivation of the French bean for the seed is confined in this country to the gardens and nurseries, and to a few spots in the Isle of Thanet in Kent, where they are raised for the London seedsmen. This is the only place, as far as our observation goes, where they are sown in the field. The produce in seed is said not to exceed twenty bushels per acre, but it must be observed that it is chiefly the dwarf sorts which are sown. There is no doubt that the produce of the runners would greatly exceed this quantity, and although it might be expensive to support them with sticks, the example of the hop grounds proves that, where the return is large, no expense or trouble is spared.



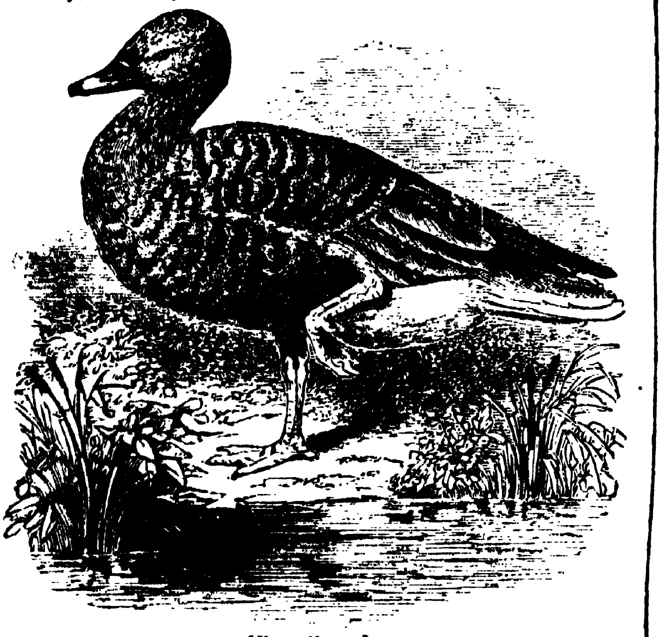
[Bean Cutter.]

The best soil for French beans is a rich mellow loam, rather light than otherwise; but, provided the ground be well stirred, they will grow in any soil. They may be planted in rows, the dwarf sorts at two and a half or three feet distance; the runners at four feet. As soon as the stems begin to rise above the seed leaves, the intervals should be well hoed with the horse-hoe, and the rows by hand. The scarifier or grubber may be used to loosen the soil, and when they are somewhat advanced in growth the runners may have sticks to climb upon. A row of turnips may be sown between every two rows of beans; or cabbages may be planted for cattle. The crop may be harvested as soon as the lower pods are quite dry and the seeds hard, and threshed like other beans. The seeds when raw have a bitter taste, and are rather tough under the teeth, which makes animals refuse to eat them in that state, but when boiled they become soft and pleasant. Oxen and pigs eat them readily. They contain, according to Einhof, 84 per cent. of nutritive matter, of which 50 is pure farina, the rest gluten and mucilage: they are, consequently, superior to every other grain or pulse cultivated, in point of nourishment; and when it is taken into the account that they remain in the ground only from May to September, and that a crop of cabbages or turnips is growing in the intervals at the same time, it will appear that the cultivation of this pulse on a large scale might add greatly to the resources of agriculture.

BEAN GOOSE (Zoology),* *Anser ferus* of Ray and Fleming, *Anas segetum* of Gmelin, one of the wild geese, which we must be careful not to confound with the *Grey Lagg*, or true wild-goose, the *Anser palustris noster* of Lister and Ray, and the species from which, as is generally admitted, our domestic geese are derived. From *that* species the *bean goose* is to be distinguished by its comparatively small and short bill, which is more compressed towards the end, and also differs in colour: for, in the bean goose the base of the under mandible, and also of the upper one, as far as the nostrils, together with the nails of both, are black, the rest of the organ being of a reddish flesh-colour, inclining to orange; whereas the bill of the grey lagg is of an orange-red, with the nail generally of a greyish white. The wings, moreover, in the bean goose reach, when closed, beyond the end of the tail.

Selby gives the following interesting account of its habits, from personal observation:—

'In Britain it is well known as a regular winter visitant, arriving in large bodies from its northern summer haunts, during September or the beginning of October, and seldom taking its final departure before the end of April or beginning of May. The various flocks, during their residence in this country, have each their particular haunts or feeding districts, to which, on each ensuing season, they invariably return, as I have found to be the case in Northumberland and the southern parts of Scotland, where wild geese have been known to frequent certain localities for a continued series of years. The habits of this and the preceding species * are very similar, and they show the same vigilance, and use the same means of guarding against surprise: their capture is therefore proportionably difficult, and it is only by stratagem that, when at rest on the ground or feeding, they can be approached within gun-shot. In stormy weather, when they are compelled to fly lower than they usually do, they may be sometimes intercepted from a hedge or bank, situated in the route they are observed to take early in the morning, in passing to their feeding ground. At night they retire to the water, or else (as I have often remarked in Northumberland) to some ridge or bar of sand on the sea-coast, sufficiently distant from the main land to afford a secure retreat; and where the approach of an enemy must become visible, or at least audible to their acute organs, before it could endanger their safety. The haunts or feeding-grounds of these birds are more frequently in the higher districts than in the lower and marshy tracts of the country, and they give the preference to open land, or where the inclosures are very large. They feed much upon the tender wheat, sometimes injuring these fields to a great extent; and they frequent also the stubbles, particularly such as are laid down with clover and other grasses. In the early part of spring they often alight upon the newly-sown bean and pea fields, picking up greedily such of the pulse as is left on the surface; and I am inclined to think that their trivial name has been acquired from their apparent predilection for this kind of food, rather than from the shape and aspect of the nail of the upper mandible, to which it has been generally attributed. They usually fly at a considerable elevation, either in a diagonal line, or in two such lines, opposed to each other, and forming a leading acute angle, like the other species; and when on wing they maintain a loud cackling, in which the voices of the two sexes may be easily distinguished. The rate at which they move, when favoured by a gentle breeze, is seldom less than from forty to fifty miles an hour, a velocity which enables them to have their roosting-place far removed from the district they frequent by day. The principal breeding stations, or summer retreats, of the bean goose are in countries within the arctic circle: it is said, however, that great numbers breed annually in Harris, and some of the other outermost Western Islands. The nest is made in the marshy grounds, and formed of grasses and other dry vegetable materials; the eggs are white, and from eight to twelve in number. The trachea of this species increases in diameter towards the middle, and the bronchiæ are short and tumid. The denticulated laminæ of the sides of the bill are similar in formation to those of the *Anser palustris*, and form thin sharp cutting edges, and the manner in which they lock within each other renders the bill an instrument beautifully adapted for vegetable food.'



[Bean Goose.]

In bulk, the bean goose is generally rather less than the grey lagg, and it is, accordingly, sometimes called provincially the *small grey goose*, but it not unfrequently equals the other in size and weight.

The head and upper part of the neck incline to brown, with a greyish tinge, and the feathers of the latter hue are so disposed as almost to produce a furrowed appearance. The lower parts of the body are ash-grey, with transverse darker shades; and the back and scapulars are brown, with a grey tinge, the feathers being edged with white. Wing-coverts grey; secondaries brown, edged and tipped with white; primaries grey-black; rump grey; upper tail-coverts white; tail brown, with the feathers deeply bordered and tipped with white; legs and toes reddish, inclining to orange, the intensity of the colour varying according to the bird's age. [See GOOSE.]

BEAR, GREAT, and LITTLE. [See URSA MAJOR, and MINOR.]

BEAR (Zoology), the English name for a family of Plantigrades (mammiferous quadrupeds of the carnivorous order, which are supported in walking on the entire sole of the foot), forming a natural group with six incisor teeth and two canine teeth in each jaw, twelve molars in the upper and fourteen in the lower jaw; pentadactyle or five-toed feet, armed with strong claws; and a short tail. The bears exhibit but a comparatively small carnivorous development: for, notwithstanding their strength, their dentition, particularly in the form of the crowns of their molar teeth, indicates a propensity bordering on the frugivorous exclusively; and indeed it appears that, although they are omnivorous *, they, for the most part, rarely devour flesh, unless pressed by necessity. Their claws, too, though formidable weapons, are not retractile, and are more calculated for digging and climbing than for tearing prey. It is their general characteristic to lay themselves up in caves or hollows for the winter, which they pass in a dormant state, and without taking food. The female produces her young at this season.

EUROPEAN BEARS.

The *Brown Bear*, Ἄρκτος of Aristotle, the *Ours* of the French, *Orso* of the Italians, *Bär* of the Germans, *Björn* of the Swedes, *Ursus Arctos* (Linn.) This appears to have been the only species certainly known to Linnæus [see POLAR BEAR]; and though zoologists are not without their suspicions as to some of the species since recorded, the number of those which can no longer be considered doubtful will prove how much this department of natural history has been enriched since his time. The brown bear is widely diffused. The mountainous districts of Europe, from very high latitudes (Arctic Circle) in the north, to the Alps and Pyrenees in the south; Siberia, Kamtchatka, and even Japan to the eastward, and a portion of the northern regions of America, form the range of its geographical distribution. Africa and the Moluccas have been added; but it is far from improbable that these localities have been assigned to it by travellers who have taken some other species for it.

To the Kamtchatkans this bear seems to have given the necessaries, and even the comforts of life. The skin, we are told, formed their beds and their coverlets, bonnets for their heads, gloves for their hands, and collars for their dogs; while an overall made of it, and drawn over the soles of their shoes, prevented them from slipping on the ice. The flesh and fat were their dainties. Of the intestines they made masks, or covers for their faces, to protect them from the glare of the sun in the spring, and used them as a substitute for glass, by extending them over their windows. Even the shoulder-blades are said to have been put in requisition for cutting grass.

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* The Grey Lagg, or true Wild Goose.

* Aristotle well knew this, and thus described the habits of the bear:—'Ἡ δὲ ἄρκτος παμφάγον ἐστι· καὶ γὰρ καρπὸν ἐσθίει, καὶ ἀναβαίνει ἐπὶ τὰ δένδρα διὰ τὴν ὑγρότητα τοῦ σώματος· καὶ τοὺς καρποὺς τοὺς χέδροπας. Ἐσθίει δὲ καὶ μέλι, τὰ σμήνη καταγνύουσα· καὶ καρκίνους, καὶ μύρμηκας· καὶ σαρκοφαγεῖ. κ. τ. λ. lib. viii. c. 5. 'But the bear is an omnivorous animal, and by the suppleness of its body climbs trees and eats the fruits and also legumes. It also devours honey, having first broken up the hives; crabs, too, and ants it eats, and also preys upon flesh.' Aristotle then describes how the animal attacks the stag, the boar, and even the bull.

The ranger in the *Tour on the Prairies* notices the honey-seeking propensity in language which, though not quite classical, is truly nomadic. 'The bears is the knowingest varmint for finding out a bee tree in the world. They'll gnaw for a day together at the trunk, till they make a hole big enough to get in their paws, and then they'll haul out honey, bees and all' (τὰ σμήνη καταγνύουσαι). See the admirable description of a bee hunt, p. 68.

The Laplanders held it in great veneration, and, according to Leems, called it the Dog of God, for it appears, that, among the Norwegians, there had long been a proverb, that it had the strength of ten men, and the sense of twelve. They never, says the same author, presume to call it by its proper name of *Guouzhja*, lest it should revenge the insult on their flocks, but make mention of it as *Moedda-aigja*, or the old man with a fur-cloak (senem cum mastrucâ).

The brown bear is a solitary animal. Its retreat, during the period of hybernation, is the natural hollow of a tree, or some cavern; and if these are not to be found, the animal constructs a habitation for itself, sometimes by digging, sometimes by forming a rude kind of hut or den with branches of trees, lined with moss. Here it retires when fat with the summer's food, and remains dormant, without taking any sustenance, till the ensuing spring[*]. Cuvier makes the period of gestation about seven months, stating that they couple in June, and that the birth takes place in January; and the same number of months is assigned in the article in the old *French Encyclopédie*, taken from observations of the bears kept at Berne. The cubs, when first born, are not much larger than puppies. They are long lived, for it appears that one of the Berne bears had been confined there one-and-thirty years; and another, born there, is spoken of at the age of forty-seven in the menagerie at Paris. They are excellent swimmers, notwithstanding their uncouth appearance. Mr. Lloyd, in his *Field Sports of the North of Europe*, gives a very interesting account of the habits of this species, and of his adventures in hunting it.

That the brown bear was at one time common in the British islands there can be no doubt. The Caledonian bears (another name for British with the Romans) were imported to make sport for the Roman people, to whom the excitement of witnessing the suffering of man and beast, in its most distressing shape, seems to have been but too welcome. From the well-known lines of Martial, descriptive of the dreadful punishment of the malefactor Laureolus, it appears that they were sometimes used as instruments of torture.

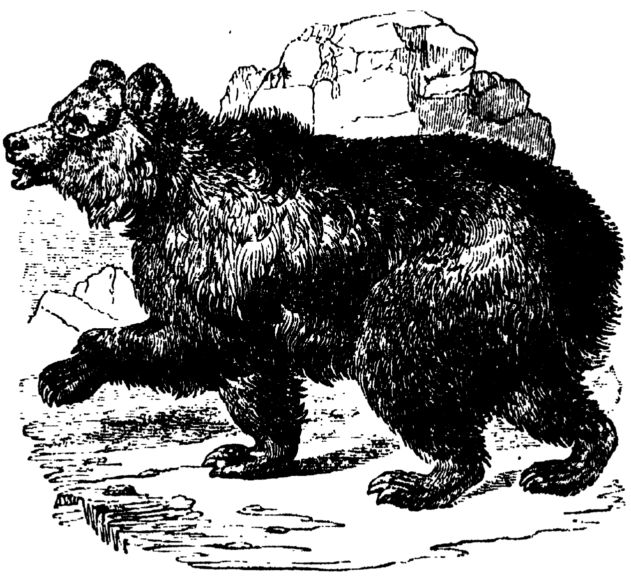
Nuda Caledonio sic pectora præbuit urso
Non falsâ pendens in cruce Laureolus[†].

Ray quotes authority for the brown bear having been one of the Welsh beasts of chase, and Pennant adduces the places which retained the name of Pennarth, or the Bear's Head, as evidence that it existed in that principality. In the *History of the Gordons* it is stated that one of that family, so late as the year 1057, was directed by the king to carry three bears' heads on his banner, as a reward for his valour in slaying a fierce bear in Scotland.

For many years it has been swept away from our islands so completely that we find it imported for baiting, a sport in which our nobility, as well as the commonalty, of the olden time—nay, even royalty itself, delighted. A bear-bait was one of the recreations offered to Elizabeth at Kenilworth, and in the Earl of Northumberland's Household Book we read of 20*s*. for his bear-ward: —'Item. My Lorde usith and accustomyth to gyfe yerly when his Lordshipe is at home to his bar-ward, when he comyth to my Lorde in Cristmas with his Lordshippe's beests, for makynge of his Lordschip pastime, the said xij days, xx*s*.' In Southwark there was a regular bear-garden, that disputed popularity with the Globe and the Swan Theatres on the same side of the water. Now however, so much do tastes alter (in this instance certainly for the better), such barbarous sports are banished from the metropolis[‡].

The firm support afforded by the well-developed sole of the foot enables the bears to rear themselves with comparative facility on their hind feet; and this has been taken advantage of to teach the animal to dance in an erect posture. The discipline put in force to produce this accomplishment is said to be so severe that it is never forgotten. There is a well-known story, introduced with the happiest effect in *The Bride of Lammermoor*, of a terrified gentleman who was pursued by a bear. The bear gained on him—was close upon him—with the resolution of despair he turned upon his pursuer with his uplifted cane, when the enraged animal reared itself up, the posture of attack, and instantly began—to shuffle a saraband.

Baron Cuvier, in his 'Ossemens Fossiles,' distinguished the *black bear* of Europe under the title of *Ursus niger Europæus*, observing that the frontal bone was flattened, and that the well-marked depressions and ridges of the skull, for the reception of the strong muscles of the lower jaw, were evidence of its being more decidedly carnivorous than the brown bear: but, in the last edition of his *Règne Animal*, he confesses his doubts about the data on which he had come to this conclusion; and it is probably a variety only. The usual size of the brown bear is about four feet in length, by about two feet and a half in height. The claws are two inches long, very much curved and nearly equal. The gambols of the individuals kept in the Garden of the Zoological Society in the Regent's Park are too well known to need description.

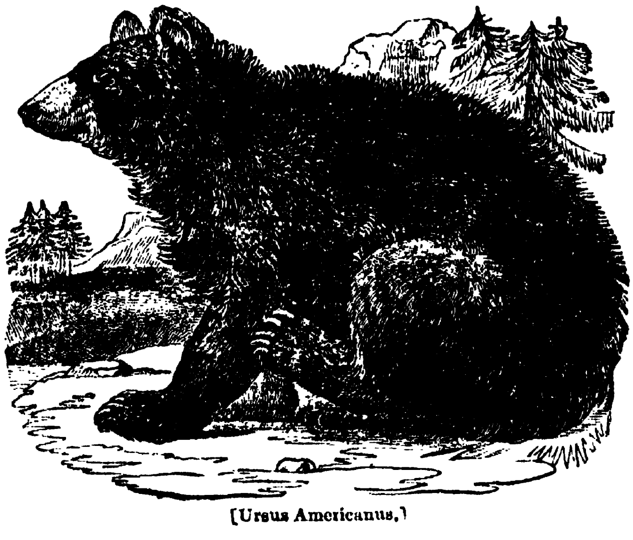


[Ursus Arctos.]

Pyrenean Bear, Ursus Pyrenaïcus.—F. Cuvier has figured the bear of the Pyrenees and of the Asturias, whose fur, in its youth, is of a yellowish white colour. The hair of the feet is an intense black. This, it is considered, is only a variety, though perhaps a distinct one, of *Ursus Arctos.*

AMERICAN BEARS.

American Black Bear, Ursus Americanus.—Pallas first described this species (the Sass of the Chippewayan Indians,



[Ursus Americanus.]

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[*] While upon the subject of hybernation, we must not omit to notice the plug (in Norway termed the Tappen), found in the rectum of fat hybernating bears. It appears that if the bear loses this prematurely, it becomes meagre, and that in the ordinary course of things, the tappen is not voided till the hybernation is over.

Dr. Buckland possesses one of these enveloped in the rectum, which was presented to him by Mr. Lloyd, whose work is hereafter alluded to, from a bear of Mr. Lloyd's own shooting.

[†] We are quite aware that some commentators are of opinion that Martial is here speaking of a mimic scene, and that the verses which follow those above quoted are not genuine; but the expression 'non falsâ cruce' is pretty strong; and if the rest of the verses are allowed to be Martial's, there is no doubt that he here describes a real spectacle. Whichever be the truth, the horrible use to which these bears were occasionally put in the arena is but too evident.

[‡] See Stat. 3 W. IV. cap. 19, sec. 29.

and the Musquaw of the Crees), whose general proportions are smaller than those of *Ursus Arctos*. The head of the American black bear is narrower, the ears more distant, and the muzzle more prominent, and it wants the depression above the eyes. The fur is composed of soft smooth hairs, which are of a glossy black for the greater part of their length, instead of possessing the shaggy and woolly character of the comparatively grizzled fur of the brown bear, except on the muzzle, which is clothed with short thickset hairs, brown on the upper part and paler on the side. The tail is apparently more prominent, and the sharper and more curved claws are nearly hidden in the hair.

'The black bear,' says Dr. Richardson, 'inhabits every wooded district of the American continent from the Atlantic to the Pacific, and from Carolina to the shores of the Arctic Sea.' A friend informs us that it still occurs, though not very often, in the Blue Ridge, in Virginia. Other authorities place its southern boundary at the Isthmus of Panama. Man has, however, gradually driven it from its haunts to make way for his works, and has compelled it to take refuge in the mountains and the immense inland forests. In Canada it is still abundant, and it is tolerably numerous on the western coast as far as California. Dr. Richardson gives the following interesting account of this species:—

'The black bear is smaller than the other American bears which we have to describe, the total length of an adult seldom exceeding five feet. Its favourite food appears to be berries of various kinds, but when these are not to be procured it preys upon roots, insects, fish, eggs, and such birds or quadrupeds as it can surprise. It does not eat animal food from choice; for when it has abundance of its favourite vegetable diet, it will pass the carcass of a deer without touching it. It is rather a timid animal, and will seldom face a man unless it is wounded, or has its retreat cut off, or is urged by affection to defend its young. In such cases its strength renders it a dangerous assailant. I have known the female confront her enemy boldly until she had seen her cubs attain the upper branches of a tree, when she made off, evidently considering them to be in safety, but in fact leaving them an easy prey to the hunter. The speed of the black bear when in pursuit is said not to be very great, and I have been told that a man may escape from it, particularly if he runs into a willow grove or amongst loose grass; for the caution of the bear obliges it to stop frequently, and rise on its hind legs for the purpose of reconnoitring. I have, however, seen a black bear make off with a speed that would have baffled the fleetest runner, and ascend a nearly perpendicular cliff with a facility that a cat might envy. This bear, when resident in the fur countries, almost invariably hibernates, and about 1000 skins are annually procured by the Hudson's Bay Company, from black bears destroyed in their winter retreats. It generally selects a spot for its den under a fallen tree, and, having scratched away a portion of the soil, retires to it at the commencement of a snow-storm, when the snow soon furnishes it with a close, warm covering. Its breath makes a small opening in the den, and the quantity of hoar frost which occasionally gathers round the aperture serves to betray its retreat to the hunter. In more southern districts, where the timber is of a larger size, bears often shelter themselves in hollow trees. The Indians remark that a bear never retires to its den for the winter until it has acquired a thick coat of fat; and it is remarkable that when it comes abroad in the spring it is equally fat, though in a few days thereafter it becomes very lean. The period of the retreat of the bears is generally about the time when the snow begins to lie on the ground, and they do not come abroad again until the greater part of the snow is gone. At both these periods they can procure many kinds of berries in considerable abundance. In latitude 65° their winter repose lasts from the beginning of October to the first or second week of May; but on the northern shores of Lake Huron the period is from two to three months shorter. In very severe winters great numbers of bears have been observed to enter the United States from the northward. On these occasions they were very lean, and almost all males: the few females which accompanied them were not with young. The remark of the natives above-mentioned, that the fat bears alone hibernate, explains the cause of these migrations. The black bears in the northern districts couple in September, when they are in good condition from feeding on the berries then in maturity. The females retire at once to their dens, and conceal themselves so carefully, that even the lyncean eye of an Indian hunter very rarely detects them; but the males, exhausted by the pursuit of the females, require ten or twelve days to recover their lost fat. An unusually early winter will, it is evident, operate most severely on the males, by preventing them from fattening a second time: hence their migration at such times to more southern districts. It is not, however, true that the black bears generally abandon the northern districts on the approach of winter, as has been asserted, the quantity of bear skins procured during that season in all parts of the fur countries being a sufficient proof to the contrary. The females bring forth about the middle of January; and it is probable that the period of their gestation is about fifteen or sixteen weeks, but I believe it has not been precisely ascertained. The number of cubs varies from one to five, probably with the age of the mother, and they begin to bear long before they attain their full size.'

It will be observed that the period of gestation attributed to the brown bear is seven months. Cuvier says that they couple in June, and produce their young in January. Sixteen weeks is the probable time allotted to the American black bear for the same purpose by Dr. Richardson, who had the best opportunities of collecting evidence on the subject. The bears kept in the fosse at Berne furnished the proof of gestation for seven months; but it is so characteristic of the family for the females to conceal themselves, that, in a state of nature, little evidence to be depended upon for its accuracy can be obtained. 'No man,' according to Brickell, 'either Christian or Indian, ever killed a she-bear with young;' and Dr. Richardson's numerous inquiries among the Indians of Hudson's Bay ended in the discovery of only one hunter who had killed a pregnant bear. The same observation was long ago made by Aristotle, for he says, in chap. xxx. book vi., *Κύουσαν δὲ αρκτον ἔργον ἐστι λαβεῖν*, 'it is difficult to capture a pregnant bear;' and again, in chap. xvii. book viii., *Κύουσα δ᾽ἄρκτος, ἢ ὑπ᾽οὐδενὸς, ἢ πάνυ ὑπ᾽ ὀλίγων εἴληπται*, 'but a pregnant bear has never been taken by anybody, or at least by very few;' and this accounts for his own error, for he makes the period of gestation only thirty days. Mr. Lloyd, in his *Field-Sports of the North of Europe*, states that he was present at the death and dissection of one (*Ursus Arctos*) which had a cub in her womb, she having previously produced three, and he relates other instances, but they are very rare.

Upon the whole, though the American black bear may be considered a well-defined species, distinct from the brown bear (*Ursus Arctos*), it is not very probable that, in two species so nearly allied, the period of gestation should be only sixteen weeks in the one instance, while it is seven months in the other. Cuvier says that the American black bears produced young in the Paris menagerie: the young were of a uniform bright ash colour, and without a collar.

The value attached to the skin of the black bear, a value very much decreased, for the skin that once fetched from twenty to forty guineas is now hardly worth more than from twenty to sixty shillings*, and the high esteem in which the Indians held their flesh, caused great havock among them. The importation into England in 1783 amounted to 10,500 skins, and ascended gradually to 25,000 in 1803, since which time there has been a considerable decline. That an animal from which the wild Indian derived so much benefit, an animal, moreover, particularly to be dreaded in the perilous hour of the chase, and when encountered unexpectedly, should be the subject of much attention, or the parent of particular customs, and the object of great superstitious regard, was to be expected. Accordingly we find that, as the New Hollanders have their kangaroo dance and dog dance, the Indians had their bear dance.

The limits of a work of this nature will not permit us to go at large into the subject of bear hunting, and the ceremonies which accompanied it among the different tribes, but, as it may be expected that something should be said on the subject, we select the account of an eye-witness, who visited the fur countries soon after Canada had yielded to Great Britain. Alexander Henry thus writes in his *Travels*, whilst at Wawatam's wintering ground near Lake Michigan:—

'In the course of the month of January I happened to observe that the trunk of a very large pine-tree was much torn by the claws of a bear, made both in going up and down. On further examination I saw that there was a large opening in the upper part, near which the smaller branches were broken. From these marks, and from the additional circumstance that there were no tracks in the snow, there was reason to believe that a bear lay concealed in the tree. On returning to the lodge I communicated my discovery; and it was agreed that all the family should go together in the morning to assist in cutting down the tree, the girth of which was not less than three fathoms. The women at first opposed the undertaking, because our axes, being only of a pound and a half weight, were not well adapted to so heavy a labour; but the hope of finding a large bear, and obtaining from its fat a great quantity of oil, an article at the time much wanted, at length prevailed. Accordingly, in the morning we surrounded the tree, both men and women, as many at a time as could conveniently work at it; and there we toiled like beavers till the sun went down. This day's work carried us about half-way through the trunk; and the next morning we renewed the attack, continuing it till about two o'clock in the afternoon, when the tree fell to the ground. For a few minutes everything remained quiet, and I feared that all our expectations would be disappointed; but as I advanced to the opening there came out, to the great satisfaction of all our party, a bear of extraordinary size, which I shot. The bear being dead all my assistants approached, and all, but particularly my old mother (as I was wont to call her), took the head in their hands, stroking and kissing it several times; begging a thousand pardons for taking away her life; calling her their relation and grandmother; and requesting her not to lay the fault upon them, since it was truly an Englishman that had put her to death. This ceremony was not of long duration, and if it was I that killed their grandmother, they were not themselves behindhand in what remained to be performed. The skin being taken off we found the fat in several places six inches deep. This, being divided into two parts, loaded two persons; and the flesh parts were as much as four persons could carry. In all, the carcass must have exceeded five cwt. As soon as we reached the lodge, the bear's head was adorned with all the trinkets in the possession of the family, such as silver arm-bands, and wrist-bands, and belts of wampum; and then laid upon a scaffold set up for its reception within the lodge. Near the nose was placed a large quantity of tobacco. The next morning no sooner appeared than preparations were made for a feast to the manes. The lodge was cleaned and swept; and the head of the bear lifted up, and a new Stroud blanket which had never been used before spread under it. The pipes were now lit; and Wawatam blew tobacco-smoke into the nostrils of the bear, telling me to do the same, and thus appease the anger of the bear on account of my having killed her. I endeavoured to persuade my benefactor and friendly adviser that she no longer had any life, and assured him that I was under no apprehension from her displeasure; but the first proposition obtained no credit, and the second gave but little satisfaction. At length the feast being ready, Wawatam made a speech resembling, in many things, his address to the manes of his relations and departed companions; but having this peculiarity, that he here deplored the necessity under which men laboured thus to destroy their friends. He represented, however, that the misfortune was unavoidable, since without doing so they could by no means subsist. The speech ended, we all ate heartily of the bear's flesh; and even the head itself, after remaining three days on the scaffold, was put into the kettle. It is only the female bear that makes her winter lodging in the upper parts of trees, a practice by which her young are secured from the attacks of wolves and other animals. She brings forth in the winter season, and remains in her lodge till the cubs have gained some strength. The male always lodges in the ground, under the roots of trees. He takes to his habitation as soon as the snow falls, and remains there till it has disappeared. The Indians remark that the bear comes out in the spring with the same fat which he carries in in the autumn; but after the exercise of only a few days becomes lean. Excepting for a short part of the season the male lives constantly alone.'

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* The retail price of an American black bear's skin in London, at present (spring of 1835), is from one to three guineas.

The following are considered to be varieties of this species, which is almost equal to the polar bear in its powers of swimming, and is said to be very fond of fish:—

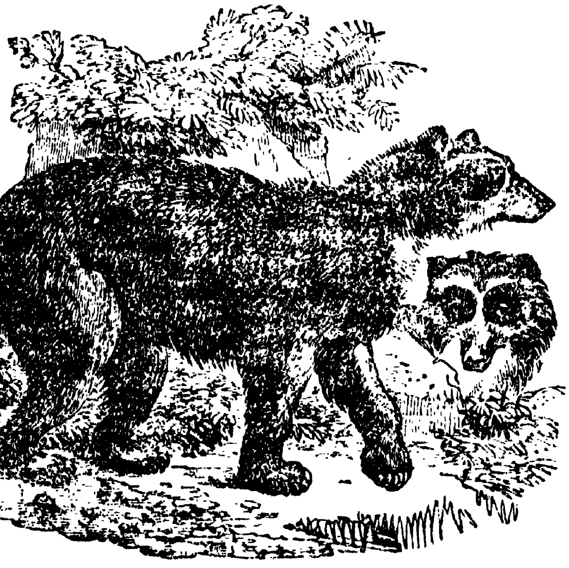
The Cinnamon Bear, which, with the black variety, may be seen in the Zoological Garden at the Regent's Park.

The Yellow Bear of Carolina, a specimen of which was in the Tower of London in 1788, and is figured by Catton.

The Ours Gulaire of Geoffroy, with a white throat. The white markings on the throat of Geoffroy's bear are, perhaps, as Dr. Richardson observes, analogous to the white collar which many of the European brown bears exhibit when young; and the Doctor cites Cartwright to show that the cubs of the black bear on the Labrador coast are often marked with white rings round the neck; and Pennant, to prove the same as to the bears of Hudson's Bay. An American black bear was kept for some time in the Tower of London in the same den with a hyæna. They agreed very well together except at meals, when the hyæna, though much the smallest, was generally master; 'and the bear,' says Mr. Bennett, 'would moan most piteously, and in a tone somewhat resembling the bleating of a sheep, while his companion quietly consumed the remainder of his dinner.'

The Spectacled Bear, Ursus Ornatus of F. Cuvier, inhabits the Cordilleras of the Andes in Chili. Its fur is smooth, shining, and black, with the following exceptions:—Its short muzzle is of a dirty yellow, or buff colour, and there are two semicircular marks of the same hue, reminding the observer of a pair of spectacles above the eyes; the under parts of the throat and neck and the upper part of the breast are whitish. This species, which may be now seen at the Garden of the Zoological Society in the Regent's Park, is about three feet and a half in length.

Sir R. Ker Porter describes a bear brought from the Andes and living at Caracas in 1833 somewhat differing in its markings from the ordinary individuals of *Ursus ornatus*; but it is probably only a variety. (See *Proceedings of the Zoological Society*, part i. p. 114.)



[Ursus ornatus.]

Before we proceed to the consideration of the true grizzly bear, we must notice the

Barren-ground Bear.—This, which appears to be the grizzly bear of Hearne, and the brown bear, variety δ, grizzly of Pennant, was stated by Dr. Richardson to be the brown variety of *Ursus Americanus*; but, in the *Fauna Boreali-Americana*, he corrects himself, and seems inclined to consider it a variety of the brown bear (*Ursus Arctos*).

'From the inquiries I made,' writes the Doctor in the last-mentioned work, 'throughout the woody country from Lake Superior to Great Slave Lake, being 10° of latitude, I learnt that the natives of those districts are acquainted with only two species of land bear, viz., the *common black bear*, including the cinnamon-coloured and other varieties, and the *grisly bear*, which is confined to the lofty chain of the Rocky Mountains, and the extensive plains that skirt their bases. The barren lands, however, lying to the northward and eastward of Great Slave Lake, and extending to the Arctic Sea, are frequented by a species of bear which differs from the American black bear in its greater size, profile, physiognomy, larger soles, and tail; and from the grisly bear, also, in colour, and the comparative smallness of its claws. Its greatest affinity is with the brown bear of Norway; but its identity with that species has not been established by actual comparison. It frequents the sea-coast in autumn in considerable numbers, for the purpose of feeding on fish. The general colour of this bear is a dusky, or sometimes yellowish-brown, but the shoulders and flanks are, in the summer season at least, covered with long hair, which is frequently very pale towards the tips. The Indians and their interpreters, who are not very precise in their application of the few terms they have to express varieties of colour, often denominate them "white bears."'

These are, not improbably, the 'silver bears' (*silber-bär* of the Germans), which Pennant considers to be the same as those which inhabit the north of Europe, though he describes them as a variety of the American black bear.

Dr. Richardson says that the barren-ground bear does not possess the boldness of the true grisly bear (*Ursus ferox*), as all the individuals seen by his party fled at once. He says that it resorts to the coast of the Arctic Sea in the month of August, and that it preys indiscriminately upon animal and vegetable food.

To an eminence which had been much ploughed up by the bears in quest of *Arctomys Parryi* (Parry's marmot), termed by Hearne 'ground hog,' according to the same author, Hearne gave the name of Grizzle-Bear Hill; and in the stomach of one of these bears which he opened the Doctor found the remains of a seal, a marmot, a large quantity of the long, sweet roots of some *astragali* and *hedysara*, together with some berries, and a little grass. Many long, white worms adhered to the interior of the stomach. He also observes that the tail of the barren-ground bear is longer than that of the black bear, which is conspicuous nough.

Subgenus Danis.

The Grisly or Grizzly Bear. Ursus (Danis) *ferox.*—Cuvier, in the last edition of his 'Règne Animal,' expresses a doubt as to the specific distinction of this formidable bear. 'Il n'est pas encore bien prouvé pour nous que l'ours cendré, l'ours terrible de l'Amerique Septentrionale, soit différent, par l'espèce, de l'ours brun d'Europe,' says the note appended to *Ursus Arctos*; and the species is not mentioned among the others recorded in the work. This is certainly great authority, but it is more than balanced; and with all due submission to so great a name, an examination of the animal will prove it to be as strongly defined a species as any which Cuvier has himself admitted. These differences indeed are so well marked, as to have induced Mr. Gray to separate it from its congeners as a subgenus.

[Ursus ferox.]

The *Grizzle Bear* of Umfreville, *Grisly Bear* of Mackenzie, *Grizzly Bear* of Warden, *Ursus cinereus* of Desmarest, *Ursus horribilis* of Say, *Meesheh Musquaw* or *Meechee Musquaw* of the Cree Indians, *Hohhost* of the Chopunnish Indians, and *Ursus ferox* (Lewis and Clarke who first accurately described the animal, calling it often 'White Bear'), is nearly double the size of the black bear. Lewis and Clarke give the measurement of one as nine feet from nose to tail, and state that they had seen one of larger dimensions. Eight hundred pounds is reported to be the weight to which it attains. The length of the fore-foot in one of those measured by the travellers above quoted is given as exceeding nine inches, that of the hind-foot at eleven and three-quarters without the talons, and the breadth seven inches. The claws of the fore-feet, which are a good deal longer and less curved than those of the hind-feet, measured in another individual more than six inches. This part of its organization is well adapted for digging, but not for climbing, and the adult grisly bear is said not to ascend trees. The muzzle is lengthened, narrowed, and flattened, and the canine teeth are highly developed, exhibiting a great increase of size and power. The tail is very small, and so entirely lost in the hair which covers the buttocks, that it is a standing joke among the Indian hunters, as Dr. Richardson observes, when they have killed a grisly bear, to desire any one unacquainted with the animal to take hold of its tail. The fur, or rather hair is abundant, long, and varying through most of the intermediate gradations between grey and blackish brown, which last is prevalent and more or less grizzled. On the muzzle it is pale and short, on the legs it is darker and coarser. The eyes are small and rather sunk in the head.

Unwieldy as this animal appears, it is capable of great rapidity of motion, and its strength is overpowering. The bison contends in vain with the grisly bear. The conqueror drags the enormous carcase (weighing about one thousand pounds) to a chosen place, digs a pit for its reception, and repairs to it till the exhausted store compels him to renew the chase. And yet he will be satisfied with fruits and roots; and on his diet depends the aggravated or mitigated ferocity of his disposition. The bears on the western side of the Rocky Mountains, which feed for the most part on a vegetable diet, are mild, when compared with those of the eastern side, whose appetite for blood is whetted by the abundant supply of animal food which is there offered to them. The accounts given of the tenacity with which the grisly bear clings to life would be almost beyond belief, were they not related by witnesses worthy of all credit. It is recorded, that one whose lungs had been pierced with five balls, and whose body was suffering under five other wounds, swam a considerable distance to a sand-bar in the river, and survived twenty minutes;—that another, shot through the centre of the lungs, pursued for half a mile the hunter by whom the wound was given, then returned more than twice that distance, dug a bed for itself in the earth, two feet in depth and five feet in length, and was apparently in full life at least two hours after the shot was fired;—and that a third, though shot through the heart within twenty paces, as he was rushing on the hunter, fell indeed, but got up again. 'We then,' say the travellers, 'followed him one hundred yards and found that the wound had been mortal.' These, and many other instances are recorded by Lewis and Clarke.

Numerous, indeed, and interesting are the relations of contests with this ferocious animal. The following narrative by Dr. Richardson is selected, as being comparatively modern, and throwing some light on its habits. 'A party of voyagers, who had been employed all day in tracking a canoe up the Saskatchewan, had seated themselves in the twilight by a fire, and were busy in preparing their supper, when a large grisly bear sprang over the canoe that was tilted behind them, and seizing one of the party by the shoulder, carried him off. The rest fled in terror, with the exception of a metif, named Bourasso, who, grasping his gun, followed the bear as it was retreating leisurely with its prey. He called to his unfortunate comrade, that he was afraid of hitting him if he fired at the bear, but the latter entreated him to fire immediately, without hesitation, as the bear was squeezing him to death. On this he took a deliberate aim, and discharged his piece into the body of the bear, who instantly dropped its prey to pursue Bourasso. He escaped with difficulty, and the bear ultimately retreated to a thicket, where it was supposed to have died; but the curiosity of the party not being a match for their fears, the fact of its decease was not ascertained. The man who was rescued had his arm fractured, and was otherwise severely bitten, but finally recovered. I have seen Bourasso, and can add, that the account which he gives is fully credited by the traders resident in that part of the country, who are best qualified to judge of its truth from their knowledge of the parties. I have been told that there is a man now living in the neighbourhood of Edmonton-house, who was attacked by a grisly bear, which sprang out of a thicket, and with one stroke of its paw completely scalped him, laying bare the skull, and bringing the skin of the forehead down over the eyes. Assistance coming up, the bear made off without doing him further injury, but the scalp not being replaced, the poor man has lost his sight, although he thinks his eyes are uninjured.' Mr. Drummond, in his excursions over the Rocky Mountains, had frequent opportunities of observing the manners of the grisly bears, and it often happened that in turning the point of a rock or sharp angle of a valley, he came suddenly upon one or more of them. On such occasions they reared on their hind legs, and made a loud noise like a person breathing quick, but much harsher. He kept his ground, without attempting to molest them; and they on their part, after attentively regarding him for some time, generally wheeled round and galloped off; though, from their known disposition, there is little doubt but he would have been torn in pieces, had he lost his presence of mind and attempted to fly. When he discovered them from a distance, he generally frightened them away by beating on a large tin-box, in which he carried his specimens of plants. He never saw more than four together, and two of these he supposes to have been cubs; he more often met them singly, or in pairs. He was only once attacked, and then by a female, for the purpose of allowing her cubs to escape. His gun on this occasion missed fire, but he kept her at bay with the stock of it, until some gentlemen of the Hudson's Bay Company, with whom he was travelling at the time, came up and drove her off. In the latter end of June, 1826, he observed a male caressing a female, and soon afterwards they both came towards him, but whether accidentally, or for the purpose of attacking him, he was uncertain. He ascended a tree, and as the female drew near, fired at and mortally wounded her. She uttered a few loud screams, which threw the male into a furious rage, and he reared up against the trunk of the tree in which Mr. Drummond was seated, but never attempted to ascend it. The female, in the meanwhile retiring to a short distance, lay down, and as the male was proceeding to join her, Mr. Drummond shot him also. From the size of their teeth and claws, he judged them to be about four years old. The cubs of a grisly bear can climb trees, but when the animal is fully grown it is unable to do so, as the Indians report, from the form of its claws.'

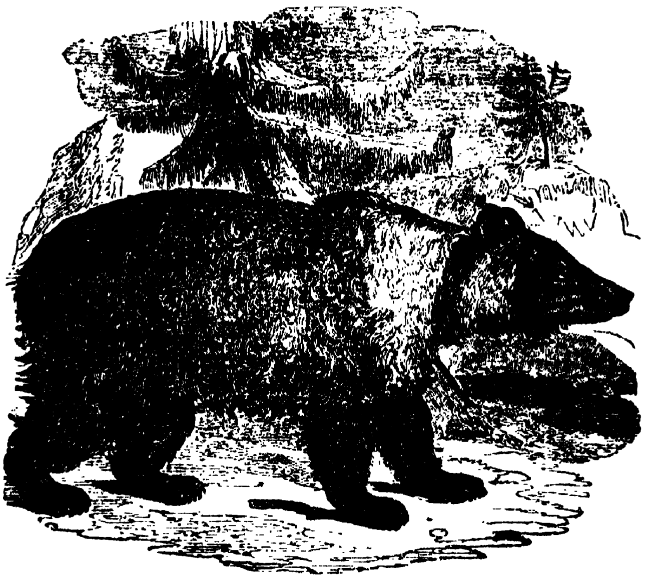
The Rocky Mountains, and the plains to the eastward of them, particularly, according to Mr. Drummond, the districts which are interspersed with open prairies and grassy hills, are the chief haunts of the grisly bears. To the north they have been observed as far as 61° of latitude, and it is supposed that they are to be found still farther. To the south it is said that they extend as far as Mexico. The cubs and the pregnant females hybernate, but the older males often come abroad for food during winter. The following dimensions have been given of a den or winter retreat,—ten feet in width, five feet in height, and six feet in length.

The fine grisly bear now in the Garden of the Zoological Society in the Regent's Park was presented to George III. by the Hudson's Bay Company, and was long a resident in the Tower under the name of Martin, and latterly of Old Martin. His present Majesty William IV. graciously presented it to the Zoological Society with the rest of the royal collection.

The brown bear mentioned by Pennant, on the authority of Condamine and Ulloa, as an inhabitant of the Peruvian Andes, must not be forgotten; but it is not known whether it belongs to this species. Cuvier thinks that the Peruvian bears of Acosta and Garcilasso may have been the great ant bears (*Myrmecophaga*). It is not impossible that these Peruvian bears may have been *Spectacled Bears* (*Ursus ornatus*).

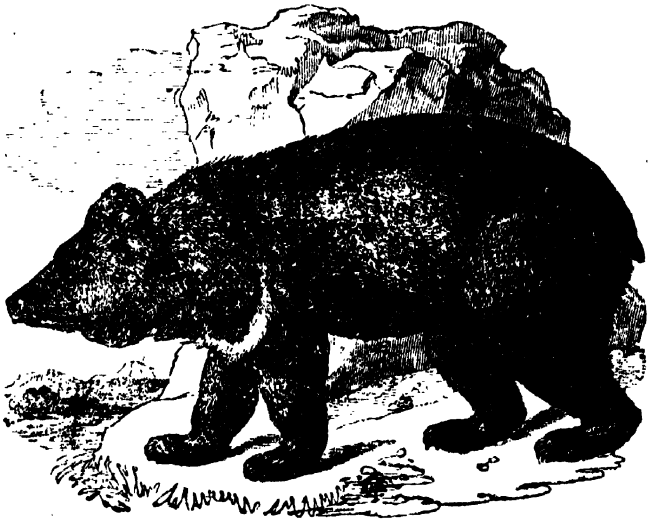
ASIATIC BEARS.

The ***Siberian Bear***, ***Ursus collaris*** of F. Cuvier, approaches closely to the brown bear (*Ursus Arctos*). The hair in quality and colour is much the same with that of the brown bear, with the distinction of a large white collar which passes over the upper part of the back and the shoulders, and is completed upon the breast. It is not improbable that this may be a variety of the brown bear.



[Ursus collaris.]

Thibet Bear.—M. Duvaucel discovered this species, *Ursus Thibetanus* of F. Cuvier, in the mountains of Sylhet, and Dr. Wallich found it in those of Nepaul. The Thibet bear has the neck remarkably thick, and the head flattened, the forehead and muzzle forming almost a straight line. The ears are of a large size. Its clumsy limbs support a compact body, and the claws are comparatively weak. Its general colour is black; but the lower lip is white, and there is a large mark of the same colour, somewhat in the form of the letter Y, supposing the stem of the letter to be placed in the middle of the breast, and the forks to pass up in front of the shoulders. In bulk it is about intermediate between the sloth bear (*Prochilus labiatus*) and the Malayan bear (*Ursus Malayanus*). Mr. Bennett, in his *Tower Menagerie*, gives a figure and description of one which was brought from Sumatra, and could not be prevailed on to touch flesh either raw or cooked, bread and fruits forming his only food. In his disposition he was moderately tame, and particularly fond of play.

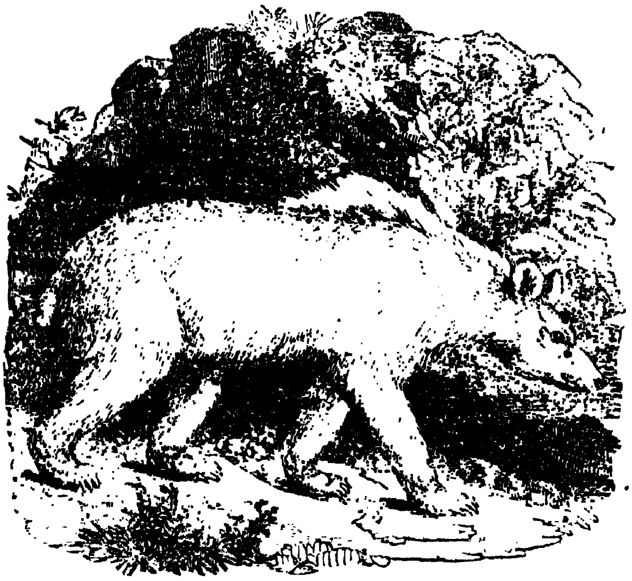


[Ursus Thibetanus.]

Isabella-coloured Bear, ***Ursus Isabellinus***.—Dr. Horsfield has described this species in the *Transactions of the Linnæan Society*, from a skin forwarded from the mountains of Nepaul. The skull had been removed, but the front teeth in both jaws and the claws remained.

'Our animal,' says Dr. Horsfield, 'is of a habit decidedly different from that of several species of *Ursus* from the same part of the world, which have been recently added to the systematic catalogues, namely, the *Ursus Thibetanus*, the *Ursus labiatus*, and the *Ursus Malayanus*. All these have a jet-black fur, a semilunar mark of a white colour on the breast, and other peculiarities affording types of subgenera, among which *Prochilus* and *Helarctos* have been defined. Our animal, on the contrary, appears to resemble the European bears in its structure, as far at least as can be determined from the parts which have been preserved in the specimen. Among these, the claws afford the best means of comparison; they are small, obtuse, and straight, while those of the Asiatic bears above mentioned are large, strongly curved, acute, and fitted for climbing.'

The *Syrian Bear, Ursus Syriacus.*—The she-bears which came out of the wood, 'and tare forty and two' of the mockers of Elisha (2 Kings ii. 23, *et seq.*), are probably the first bears on record. These bears of Syria may be occasionally traced in subsequent history. Thus Matthew Paris, in his *England*, relates how Godfrey (*Dux Godefridus*), as he was riding for recreation in a neighbouring wood during the siege of Antioch (*Antiochiam minorem*), saw a poor stranger, who was loaded with a bundle of dry wood, fleeing from an enraged bear, whereupon Godfrey gallantly went to the rescue, and the bear turning upon him he was unhorsed, the horse being wounded by the bear, and fought on foot, when, after a severe struggle, in which he received a most dangerous wound (*vulnus fere letiferum*), he buried his sword up to the hilt in his savage adversary, and killed him. The historian, in continuation, relates the great joy of the army at Godfroy's recovery. (*Hist. of England*, tom. ii. p. 34, folio, London, 1640.)



[Ursus Syriacus.]

Hasselquist makes no mention of a bear in his catalogue of the animals given in his travels in the Levant, in the years 1749, 1750, 1751, and 1752; but Seetzen, some twenty years ago, was informed in the country that bears existed in the mountains of Palestine.

Hemprich and Ehrenberg, in the *Symbolæ Physicæ*, have given a figure (here copied) and a description of a female killed near Bischerre in Syria. The following is the substance of the description.

Bear, of a uniform fulvous white (sometimes variegated with fulvous); ears elongated; forehead but slightly arched; fur woolly beneath, with long straight, or but slightly curled, hair externally; a stiff mane of erected hairs (about four inches long) between the shoulders.

The individual killed was neither young nor old, and measured, from the nose to the tip of the tail, about four feet two, the tail being six inches. Nothing was found in the stomach, nor were any *entozoa* (internal worms) discovered. They saw her den (where there was much bear's dung), formed by great fragments of calcareous rock, that appeared to have been casually thrown together. They ate of the flesh, which they found [illegible], but the liver was sweet and nauseous. The gall appears to be in great esteem; the skins are sold; and so is the dung, under the name of Bar ed dub, the latter being used as a medicine for diseases of the eye in Syria and Egypt.

Mount Lebanon is crowned with two snowy summits, one called Gebel Sanin, the other Makmel, both of which the travellers visited; but there are no bears, except upon Mount Makmel, near the village of Bischerre, to the gardens of which they are said to wander in winter; but in the summer they remain in the neighbourhood of the snow.

The Syrian bear frequently (*non raro*) preys on animals, but for the most part feeds on vegetables. The fields of *cicer arietinus* (a kind of chick-pea), and other crops near the snowy region, are often laid waste by it.

The skin is sometimes fulvous brown, and, as has been stated, sometimes fulvous white, varied with fulvous spots. These changes are supposed to have been occasioned by the abrasion of the long hair, whereby the woolly fur beneath and that of the head become exposed.

In the British Museum is a yellowish bear presented by the Royal College of Surgeons, which has some points of resemblance with Ehrenberg's description; but it is an albino variety of the brown bear (*Ursus Arctos*), and came from Russia.

Those who are familiar with Athenæus will remember the description of the procession of Ptolemy Philadelphus (lib. v. p. 201, Casaub.) at Alexandria, in which one great white bear (*ἄρκτος μὲν λευκὴ μεγάλη μία*) makes a conspicuous figure. Some, and among them Baron Cuvier, have thought that this was the *Ursus maritimus*. Ehrenberg thus writes upon this point, after referring to the opinion of Cuvier:—'But since it is evident from Prosper Alpinus, that white bears, of the size of a sheep (tame if you will) were known in the land of the Arabians and in Egypt, I would rather believe that Ptolemy's bear was distinguished for its size (as it is written) than distinct in species. There is scarce room for hesitating to refer all those evidences of bears seen in Egypt to our Syrian bear.'

To this we can add that, in Rosellini's work (plate M. C. No. 22) there is a representation of two men together,—one, a red man with a red beard and long black hair with a fillet, clad in a white tunic or frock bordered with blue and red stripes and with blue tassels at the neck, supports on the left shoulder a package nearly square, pinkish, and spotted with blue, and holds in the right hand a red vase. His companion, of the same colour, dressed in the same way, but with the fore-part of his head apparently shaven or covered with a cap of the same colour as the skin (the hinder part with the black hair cut close), carries on his left shoulder two elephants' tusks, and with his right hand leads a large yellowish bear, high in the withers and with a red collar.

In the same plate, and immediately before the bear-leaders, is a dark-brown man, naked all but the cincture (which is white patched with red leopard-like spots), a white collar round his neck with a red centre-piece, and white wristbands. He has no beard: his head is covered by a close skull-cap spotted with black: on his left shoulder he bears a log (ebony?), and with his right hand leads a leopard or panther.

There are also two men conducting a giraffe with a monkey climbing up its neck; and there is an elephant with its keeper, and a lion without any guardian.

The bear figured in Rosellini is led apparently in a procession, and Ptolemy's pompa occurs immediately to the observer; but the modern opinion would refer these figures to a date long prior to the Greek occupation of Egypt. If this opinion be correct (and it is considered the better one), Rosellini's plate cannot relate to Ptolemy's pompa.

Subgenus Prochilus.

Labiated Bear, or *Sloth Bear, Ursus* (*Prochilus*) *Labiatus.*—Illiger, it is true, founded this genus on imperfect materials, for the individual which led him to separate it had lost its incisor teeth, a loss to which it is said the species is very subject*. M. de Blainville proved that it was a species of bear; and we think that, though Illiger's description, from the cause above alluded to, was incorrect, his name is expressively characteristic of one of the subdivisions of this family, and should be retained.

The uncouth animal, on its arrival in Europe some forty-five years ago, was taken for a sloth, and obtained the name of *Bradypus pentadactylus* and *Ursinus*, 'Five-fingered Sloth, Sloth Bear, or Ursine Sloth.' By the two last names it is, or very lately was, shown in menageries; and Bewick gave an excellent portrait of it in his *Quadrupeds*, as 'an animal which has hitherto escaped the attention of naturalists.' Meyer called it a *Melursus;* and Fischer a *Chondrorhynchus.* It is the *Bradypus ursinus* of Shaw, though it bears no relation to the true sloths either in structure or habits; the *Ursus labiatus* of M. Blainville; and the *Ursus longirostris* of Tiedemann; the *Ours paresseux,* and *Ours jongleur* of the French, and *Aswail* of the Mahrattas. The short limbs, the depressed air of the head, surmounted by the hillock of a back, and the whole contour of the apparently unwieldy mass, give the idea of deformity, and make it a favourite with the Indian mountebanks or jugglers, who rely on the attraction of its ugliness.

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* In the proceedings of the Zoological Society for 1830-1831, it is stated, that, in the skulls of many individuals of this species which he examined, Major Sykes had never seen more than four incisor teeth in the upper and six in the lower jaw; the two centre teeth standing a little in front of the line of the rest. One individual, then in his possession, was so young, that he did not conceive that the deficient incisors could have fallen out; nor was there any appearance of dentition having existed in the places which they should have occupied. He considered, therefore, that it might be deemed adviseable to remove this animal from the genus *Ursus*; but we cannot agree with him.

[Ursus (Prochilus) labiatus.]

The cartilage of the nose is capable of extension, and the lips of considerable protrusion, as may be seen if the spectator hold a morsel of fruit or biscuit at a proper distance for exciting the animal to exert this faculty. The muzzle is elongated, and, with the ends of the feet, is whitish or yellowish. The forehead rises almost abruptly from the muzzle. The fur, with the exceptions above noticed and that next mentioned, is deep black, with here and there some brown spots, and is rather long, particularly round the head in old individuals. Upon the under side of the neck and breast is a white mark, resembling the letters V or Y. In bulk it is about the size of the brown bear.

The food of this species in a state of nature is said to consist of fruits, honey, and the white ants, which are so destructive. It inhabits the mountainous parts of India, where its retreat is stated to be in some cavern. Major (now Colonel) Sykes noticed it in Dukhun (Deccan).

In captivity it appears to be mild, but melancholy. A pair were kept for some time in the garden of the Zoological Society, and one still survives. They lived very sociably, and often lay huddled together, uttering a kind of rattling but low whine, or purring, which was continuous and monotonous, but not entirely unmusical: indeed it was termed, by more than one who heard it, their song. The paw was generally at the mouth when they made this noise.

Subgenus Helarctos.

Lady Banks received, as a present, in 1819, a *Malayan Bear,* which was brought from Bencoolen. This individual was examined by Dr. Leach, but it does not appear that his description, if he wrote any, was ever published. In 1821 Sir Stamford Raffles gave, in the 13th volume of the *Transactions of the Linnean Society,* his interesting account of the species, under the name of *Ursus Malayanus.* Soon afterwards Dr. Horsfield described it as it is found in Sumatra, by the same name.

The arrival of another species from Borneo, in or about the year 1825, agreeing with the former in the arrangement of the teeth, the extensibility of the lips, the great length of the tongue, the shortness and smoothness of the fur, and other characters, induced Dr. Horsfield to institute the subgenus above mentioned. 'The range of both species,' says Dr. Horsfield, 'appears to be limited to within a few degrees of the equator.'

Malayan Bear.—This species, the *Bruang* of the Malays, *Ursus Malayanus* of Raffles, *Prochilus Malayanus* of Gray, *Helarctos Malayanus* of Horsfield, is jet-black, with the muzzle of a yellowish tint, and has a semilunar white mark upon the breast. Dr. Horsfield observes, that the largest prepared specimen which he had examined measured four feet six inches along the back.

[Ursus (Helarctos) Malayanus.]

The sagacity of the Malayan bear is said to be great, and its liking for delicacies extreme. The honey of the indigenous bees of its native forests is supposed to be a favourite food; and certainly the extreme length of the tongue is well adapted for feeding on it. Vegetables form the chief diet of this bear, and it is said to be attracted to the vicinity of man by its fondness for the young shoots of the cocoa-nut trees, to which it is very injurious; indeed Sir Stamford Raffles found those of the deserted villages in the Passumah district of Sumatra destroyed by it. It has not unfrequently been taken and domesticated.

In confinement it is mild and sagacious. Sir Stamford Raffles thus describes the manners of one which appears to have been deservedly a great favourite.

'When taken young,' writes Sir Stamford in the *Linnean Transactions,* 'they become very tame. One lived for two years in my possession. He was brought up in the nursery with the children; and, when admitted to my table, as was frequently the case, gave a proof of his taste by refusing to eat any fruit but mangosteens, or to drink any wine but champagne. The only time I ever knew him to be out of humour was on an occasion when no champagne was forthcoming. It was naturally of an affectionate disposition, and it was never found necessary to chain or chastise him. It was usual for this bear, the cat, the dog, and a small blue mountain bird or lory of New Holland, to mess together, and eat out of the same dish. His favourite playfellow was the dog, whose teasing and worrying was always borne and returned with the utmost good humour and playfulness. As he grew up he became a very powerful animal, and in his rambles in the garden he would lay hold of the largest plantains, the stems of which he could scarcely embrace, and tear them up by the roots.'

There is an individual in the garden of the Zoological Society in the Regent's Park. The specimen presented to Lady Banks is preserved in the British Museum.

M. Lesson considers this species to be identical with the sloth-bear, *Prochilus labiatus.* We cannot agree with him, and we have had the best opportunities of examining both, while alive and after death. Few species of bear are, in our opinion, more distinct.

Bornean Bear.—This, the *Helarctos Euryspilus* of Horsfield, differs from the Malayan bear principally in having a large orange-coloured patch, deeply notched at its upper part, upon the chest. In size it is supposed to be rather less than the last. The individual which was exhibited in the Tower of London, and from which Dr. Horsfield wrote his description, measured, along the back from muzzle to tail, three feet nine inches. It was obtained in Borneo when very young, and during the voyage was the constant associate of a monkey and other animals. In confinement its manners greatly resembled those of the Malayan bear. Its habits in a state of nature do not appear to be known, but are most probably similar to those of the Malayan species. Dr. Horsfield gives the following account of the Bornean bear in captivity, to the correctness of which we can bear testimony, for we watched the animal narrowly:—'Our animal has been shown to be completely plantigrade: it rests with facility on the posterior feet, and its robust thighs not only support it while sitting, but even enable it to raise itself without difficulty to a nearly erect posture. But it is more generally seen in a sitting attitude, at the door of its apartment, eagerly surveying the visitors, and attracting their notice by the uncouthness of its form or the singularity of its motions. Although it appears heavy and stupid, most of its senses, particularly those of sight and smelling, are very acute. The keeper has frequently observed that it attentively regards whatever passes before it in the court. But the olfactory organs are peculiarly strong, and appear to be in a state of constant excitement. The *Helarctos* has considerable command over the fleshy extremity of its nose, and the parts adjacent, which it often displays in a very ludicrous manner, particularly when a morsel of bread or cake is held at a small distance beyond its reach. It expands the lateral aperture of the nostrils, protrudes its upper lip by a strong effort, thrusting it forward as a proboscis, while it employs its paws to seize the object. After obtaining it and filling the mouth, it places the remainder with great calmness on the posterior feet, bringing it in successive portions to its mouth. It often voluntarily places itself in an imploring attitude, turning the head in different directions, earnestly regarding the spectators and extending the paws. The *Helarctos* readily distinguishes the keeper, and evinces an attachment to him. On his approach it employs all its efforts to obtain food, seconding them by emitting a coarse, but not unpleasant, whining sound. This it continues while it consumes its food, alternately with a low grunting noise; but if teased at this time, it suddenly raises its voice and emits at intervals harsh and grating sounds. Our animal is excessively voracious, and appears to be disposed to eat almost without cessation. When in a good humour, it often amuses the spectators in a different manner. Calmly seated in its apartment, it expands the jaws, and protrudes its long and slender tongue as above described. It displays on many occasions not only much gentleness of disposition, but likewise a considerable degree of sagacity. It appears conscious of the kind treatment it receives from its keeper. On seeing him, it often places itself in a variety of attitudes to court his attention and caresses, extending its nose and anterior feet, or suddenly turning round exposing the back, and waiting for several minutes in this attitude with the head placed on the ground. It delights in being patted and rubbed, and even allows strangers to do so; but it violently resents abuse and ill treatment, and having been irritated, refuses to be courted while the offending person remains in sight.'

[Ursus (Helarctos) euryspilus.]

The individual whose manners are here so well described fell a victim to its voracity. During the hot weather of the summer of 1828 it overgorged itself one morning, and died within ten minutes after the meal. Its skin is preserved in the Museum of the Zoological Society.

African Bears.

The existence of bears in Africa has been more than doubted. Even Cuvier, who saw the weak points of the negative evidence on this subject, says, 'the existence of bears in Africa is not so indisputable.'

Pliny (viii. 36) observes, that it was recorded in the Annals that Domitius Ænobarbus, the curule Ædile, in the consulship of M. Piso and M. Messala, B.C. 62, exhibited a hundred Numidian bears, and as many Æthiopian hunters in the circus, and adds his wonder that the bears should have been called Numidian, as it was evident that no bears were produced in Africa. In the 57th chapter of the same book he makes the broad assertion, that in Africa there are neither boars, nor stags, nor goats, nor bears.

Ursinus Lipsius and Vossius have tried to make out that these Numidian bears were lions, and adduce, in proof, medals of Ænobarbus with a man fighting a lion. But, as Cuvier well observes, how could the Romans, who, according to this same Pliny, had seen such multitudes of lions, have confounded the two animals? He further observes, that Aldrovandus and Zimmerman support the annalist, maintaining that a bear exists in Africa, but that it is rare, and that Solinus even asserts that the bear is finer there, being covered with longer hair, and of a very furious disposition.

Shaw speaks of bears of Barbary, but without particularizing them.

Desfontaines who remained so long at Algiers, and visited Atlas, never saw a bear, and only heard a vague report that there might be some in the forests, 'des environs de la Calle.'

'Prosper Alpinus,' says Cuvier, 'attributes bears to Egypt, but which were assuredly no bears at all, for he states that they are of the size of a sheep, and of a white colour. Never did one of the naturalists of our expedition see there any true bears.' [But see Syrian Bear.]

Poncet, indeed, says that one of his mules was wounded in Nubia by a bear. But Bruce thinks that he confounded the Arabian word *dubbah*, which signifies a hyæna, with *dubb* (whence probably the name of the star in the constellation), which signifies a bear. He goes farther, and says positively that there is no bear in any part of Africa.

All these authorities are enumerated by Cuvier, who alludes also to Dapper as placing bears in Congo, but with no reliance on him.

The inclination of Cuvier's mind, then, seems to have been against the existence of bears in Africa: and yet the record of the annalist quoted by Pliny, and the numerous passages concerning Libyan bears in Herodotus, Virgil, Juvenal, Martial and others, make a strong case for that existence.

It was reserved for Ehrenberg to solve these doubts in great measure. In the work above quoted he thus writes 'Moreover, we ourselves have seen in the mountains of Abyssinia, and therefore in Africa itself, an animal most like to a bear (nay, why had I not said—a bear?) and hunted it repeatedly, but in vain. It is called by the natives *Karrai*.' He then goes on to state, that he can give to those who are interested in the geographical distribution of the bear, true tidings of a blackish plantigrade wild beast most like unto a bear, in the mountains of Abyssinia, though neither Bruce nor Salt makes mention of it; and that, according to the description of the inhabitants, the mountains of Arabia Felix are inhabited by a similar or the same blackish bear, said to be remarkable for its lengthened muzzle. He adds, 'Forskal, moreover, has brought tidings of an indigenous Arabian bear.'

Marine Bear.

Subgenus Thalarctos.

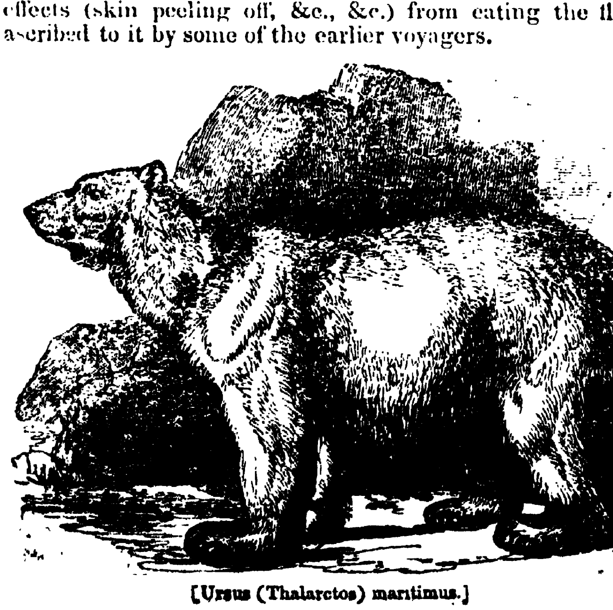
Polar Bear.—Martens was one of the first who distinguished this species from actual observation. The brown bear, as has been stated, appears to have been the only species known to Linnæus. It is not, indeed, till his tenth edition that he shows any suspicion that the Polar bear was distinct; and, in his last, he only ventures to say, in a notice appended to the description of Ursus Arctos, 'Ursus *maritimus* albus major arcticus. Martens. *Spitzb.* 73. t. o. f. c. forte distincta species est, nobis non visa, capite longiore, collo angustiore.'

The habits, and many parts of its organization adapted to those habits, of the *Polar* or *Sea Bear*, *l'Ours Polaire* of the French, *Wawpusk* of the Cree Indians, *Nannook* of the Esquimaux, *Nennook* of the Greenlanders, *Ursus maritimus* of Erxleben, *Ursus marinus* of Pallas, *Ursus albus* of Brisson, *Thalarctos maritimus* of Gray, according to the testimony of all zoologists, have confirmed the accuracy of Martens.

An inhabitant of the dreary regions which surround the North Pole with eternal frost, and of those coasts which are rarely free from ice, the Polar bear is almost entirely carnivorous, in a state of nature. Animals of the land and of the sea, birds and their eggs, the dead and the living, are alike devoured. An admirable swimmer and diver, and of great strength, he chases the seal with success, and is said to attack the *Walrus* itself. Cartwright relates an anecdote in proof of his agility in the water. He saw a Polar bear dive after a salmon, and the bear dived with success, for he killed his fish. Captain Lyon gives the following account of its hunting the seal: 'The bear on seeing his intended prey, gets quietly into the water, and swims until to leeward of him, from whence, by frequent short dives he silently makes his approaches, and so arranges his distance, that, at the last dive, he comes to the spot where the seal is lying. If the poor animal attempts to escape by rolling into the water, he falls into the bear's clutches; if, on the contrary, he lies still, his destroyer makes a powerful spring, kills him on the ice, and devours him at leisure.' The same author informs us that this bear not only swims with rapidity, but is capable of making long springs in the water. Captain Sabine states that he saw one about midway between the north and south shores of Barrow's Straits, which are forty miles apart, though there was no ice in sight to which he could resort for rest.

The floating carcasses of whales and other marine animals form a considerable part of its food, and the smell of the burning *kreng* often brings it to the whale ships. Dr. Richardson says, that it does not disdain, in the absence of other food, to seek the shore in quest of berries and roots. The Polar bear moves faster on firm ground than might be supposed from his appearance. Captain Lyon describes its pace when at full speed, as 'a kind of shuffle, as quick as the sharp gallop of a horse.'

This species is of a more lengthened form than that of the others, the head is very much elongated and flattened, the ears and mouth comparatively small, the neck very long and thick, and the sole of the foot very large. The fur is silvery white tinged with yellow, close, short and even on the head, neck, and upper part of the back; long, fine, and inclined to be woolly on the hinder parts, legs, and belly. The sole of the foot exhibits a beautiful instance of adaptation of means to an end, for it is almost entirely covered with long hair, affording the animal a firm footing on the ice. The claws are black, not much curved, thick and short. Captain Lyon's crew found none of the terrible effects (skin peeling off, &c., &c.) from eating the flesh, ascribed to it by some of the earlier voyagers.



[Ursus (Thalarctos) maritimus.]

The accounts given of the size, strength, and ferocity of this animal by the early navigators are appalling; but the accuracy of modern investigation has dissipated a good deal of the awe with which it was regarded, and has gone far to prove, that the excited imagination of some of the narrators has led them beyond the truth. That the polar bear when pressed will attack man there is no doubt, and that such an attack must be most formidable, every one who has seen the fine specimen, killed in 70° 40′ N. lat. and 68° 00′ W. long., brought home by Captain (now Sir John) Ross, from his first voyage (1818), and exhibited on the staircase of the British Museum, will allow. But when one informs us that the skin of a Polar bear slain by him and his comrades was twenty-three feet long; and another, that he and his party were frequently attacked by them, that they seized on the seamen, carried them off with the greatest ease, and devoured them at their leisure within sight of the survivors; we must be permitted to pause before we give entire credence to the stories.

The gallant adventurers who conducted the modern northern expeditions penetrated far beyond the points formerly reached, and had opportunities of observing numbers of Polar bears. The greatest length from nose to tail, recorded by Captain Phipps, is seven feet one inch, the weight of the beast being six hundred and ten pounds. Captain Ross records the measurement of seven feet ten inches, and the weight of eleven hundred and sixty pounds; and Captain Lyon states, that one which was unusually large, measured eight feet seven inches and a half, and weighed sixteen hundred pounds. The greater number of full grown individuals are spoken of as far inferior to these in dimensions and weight.

The testimony of zoologists is to the same effect. The adult female mentioned by Pallas was only six feet nine inches from nose to tail; and that in the French menagerie, alluded to by Cuvier, measured about six feet English on its arrival, and gained nothing in size at the end of seven years. The individual which has been kept for a considerable time in the garden of the Zoological Society is familiar to many of our readers, and furnishes another instance of the average proportions of these animals.

Pennant states that Polar bears are frequent on all the Asiatic coasts of the Frozen Ocean, from the mouth of the Obi eastward, and that they abound in Nova Zembla, Cherry Island, Spitzbergen, Greenland, Labrador, and the coasts of Baffin's and Hudson's Bays, but that they are unknown on the shores of the White Sea. Captain (now Sir Edward) Parry, saw them within Barrow's Straits as far as Melville Island; and, during his daring boat-voyage, beyond the 82° north latitude. Dr. Richardson says, that the limit of their incursions southward on the shores of Hudson's Bay and of Labrador, may be stated to be about the 55th parallel. Captain (now Sir John) Franklin learnt from the Esquimaux to the westward of Mackenzie River, that they occasionally, though rarely, visited that coast. Captain Beechey did not meet with any in his voyage to Icy Cape.

As the Polar bear resides principally on the fields of ice, he is frequently drifted far from the land. 'In this way,' says Dr. Richardson, 'they are often carried from the coast of Greenland to Iceland, where they commit such ravages on the flocks, that the inhabitants rise in a body to destroy them.' The same author gives the following observations, confirmatory of Hearne, from Mr. Andrew Graham's MSS. 'In winter,' says Graham, 'the white bear sleeps like other species of the genus, but takes up its residence in a different situation, generally under the declivities of rocks, or at the foot of a bank where the snow drifts over it to a great depth; a small hole for the admission of fresh air is constantly observed in the dome of its den. This, however, has regard solely to the she-bear, which retires to her winter quarters in November, where she lives without food, brings forth two young about Christmas, and leaves the den in the month of March, when the cubs are as large as a shepherd's dog. If perchance her offspring are tired, they ascend the back of the dam, where they ride secure either in water or ashore. Though they sometimes go nearly thirty miles from the sea in winter, they always come down to the shores in the spring with their cubs, where they subsist on seals and sea-weed. The he bear wanders about the marshes and adjacent parts until November, and then goes out to the sea upon the ice, and preys upon seals. They are very fat, and though very inoffensive if not meddled with, they are very fierce when provoked.'

The Esquimaux account of the hybernation of this species is thus related by Captain Lyon: 'From Ooyarrakhioo, a most intelligent man, I obtained an account of the bear, which is too interesting to be passed over.

'At the commencement of winter, the pregnant she-bears are very fat, and always solitary. When a heavy fall of snow sets in, the animal seeks some hollow place in which she can lie down, and then remains quiet while the snow covers her. Sometimes she will wait until a quantity of snow has fallen, and then digs herself a cave: at all events, it seems necessary that she should be covered by and lie amongst snow. She now goes to sleep, and does not wake until the spring sun is pretty high, when she brings forth her two cubs. The cave, by this time, has become much larger, by the effect of the animal's warmth and breath, so that the cubs have room enough to move, and they acquire considerable strength by continually sucking. The dam at length becomes so thin and weak, that it is with great difficulty she extricates herself, when the sun is powerful enough to throw a strong glare through the snow which roofs the den. The Esquimaux affirm, that during this long confinement the bear has no evacuations, and is herself the means of preventing them by stopping all the natural passages with moss, grass, or earth. (See *note* on the bear's *tappen.*) The natives find and kill the bears during their confinement by means of dogs, which scent them through the snow, and begin scratching and howling very eagerly. As it would be unsafe to make a large opening, a long trench is cut, of sufficient width to enable a man to look down, and see where the bear's head lies, and he then selects a mortal part into which he thrusts his spear. The old one being killed, the hole is broken open, and the young cubs may be taken out by hand, as, having tasted no blood, and never having been at liberty, they are then very harmless and quiet. Females which are not pregnant roam throughout the whole winter in the same manner as the males. The coupling time is in May.'

That part of these accounts which relates to the non-hybernation of some of these bears is corroborated by Captain Parry, who saw them roaming in the course of the two winters which he passed on the coast of Melville Peninsula.

That the Polar bear will subsist on vegetable diet was proved in the case of two which lived and throve for years in the French menagerie without being allowed to touch animal food. The individual kept in the Tower in the reign of Henry III. seems to have been indulged in diet and recreation more congenial to its habits, for there are two of the king's writs extant in choice Latin, directing the sheriffs of London to furnish four-pence a day for 'our white bear in our Tower of London, and his keeper,' and to provide a muzzle and iron-chain to hold him when out of the water, and a long and strong rope to hold him when he is fishing in the Thames.[*]

FOSSIL BEARS.

The fossil remains of these animals, when first found, ministered, as might have been expected from the spirit of the age, to the speculations of the lovers of the marvellous, and figured in the medical prescriptions of the time. The caverns of the neighbourhood of the Hartz were ransacked for them; and their supposed virtue as medicines, under the title of fossil Unicorns' Bones, procured a ready sale. In the *Protogæa* of Leibnitz, there is a figure of one of these fossil unicorns, the product of an imagination sufficiently lively.

But it was not till the year 1672, as Cuvier observes, that any notice, truly osteological, appeared on the subject, when Hayn gave some representations of their bones brought from a cave of the Carpathians, as those of dragons; and, by way of helping the evidence, informed his readers that there were still to be found in Transylvania dragons alive and flying.

These were the remains of the extinct bear of the caves (*Ursus spelæus*), an animal which must have approached a large horse in size, some of whose bones are given by Esper, in his *Description des Zoolithes et des Cavernes dans le Margraviat de Bareuth* (1774). Rosenmüller, in 1794 and 1795, gave the figure of a cranium from Gailenreuth; and John Hunter, in the *Philosophical Transactions* (1794), described the bones found there; and the Margrave of Anspach the caves. In 1804 Rosenmüller again returned to the subject.

The amount of information had now arrived to such a point, that Blumenbach distinguished the skulls found in the caverns as those of two distinct species, and gave them severally the names of *Ursus spelæus* and *Ursus arctoideus*, which Cuvier adopted, expressing, however, his opinion that they were only varieties of the same species.

Without entering largely into a detail of all the caverns where these remains were found, it may be as well shortly to notice some of the different districts where they occur. Those in the neighbourhood of the Hartz furnished the fossil unicorns' bones above alluded to. The principal of these are those of Scharzfeld and Baumann, the latter of which owes its name (Baumanns Höhle) to a wretched miner, who, in 1670, lured by the hope of finding ore, sought its recesses. There he wandered, alone and in darkness, three days and three nights. At length he found his way out, but in so exhausted a condition, that he only returned to the light of day to die.

The caverns of the Carpathians supplied the dragons' bones above mentioned.

In Franconia, near Muggendorf, the caves are numerous, and abound in bones. Here are the caverns of Gailenreuth, Rabenstein, Kühloch, &c.

The south-west border of the Thuringerwald has those of Glücksbrunn and Leibenstein, near Meinungen, and Westphalia those of Klüterhöhle and Sundwick.

In these caves, it appears, successive generations of bears, now swept from the face of the earth—absolutely extinct as species—were born, lived, and died, for a very long series of years. Rosenmüller, Hunter, Blumenbach, Cuvier, and Buckland, all agree in this point. The first of these found bones of a bear so young, that its death must have almost immediately followed its birth, and other remains of individuals which must have died in their youth. It would be out of place here to give an account of the remains of the other animals, many of them also extinct, found in the same places; but it is agreed on all sides, that the proportion of bears, in relation to the others, must have been great. Buckland (*Reliquiæ Diluvianæ*) thus expressively describes the scene in the cavern of Kühloch. 'It is literally true, that in this single cavern (the size and proportions of which are nearly equal to those of the interior of a large church) there are hundreds of cart-loads of black animal dust, entirely covering the whole floor, to a depth which, if we multiply this depth by the length and breadth of the cavern, will be found to exceed 5000 cubic feet. The whole of this mass has been again and again dug over in search of teeth and bones, which it still contains abundantly, though in broken fragments. The state of these is very different from that of the bones we find in any of the other caverns, being of a black, or, more properly speaking, dark umber colour throughout, and many of them readily crumbling under the finger into a soft dark powder, resembling mummy powder, and being of the same nature with the black earth in which they are imbedded. The quantity of animal matter accumulated on this floor is the most surprising and the only thing of the kind I ever witnessed; and many hundred, I may say thousand, individuals must have contributed their remains to make up this appalling mass of the dust of death. It seems, in great part, to be derived from comminuted and pulverised bone; for the fleshy parts of animal bodies produce, by their decomposition, so small a quantity of permanent earthy residuum, that we must seek for the origin of this mass principally in decayed bones. The cave is so dry, that the black earth lies in the state of loose powder, and rises in dust under the feet: it also retains so large a proportion of its original animal matter, that it is occasionally used by the peasants as an enriching manure for the adjacent meadows.' The following is added by the Professor in a note:—'I have stated, that the total quantity of animal matter that lies within this cavern cannot be computed at less than 5000 cubic feet; now allowing two cubic feet of dust and bones for each individual animal, we shall have in this single vault the remains of at least 2500 bears, a number which may have been supplied in the space of 1000 years, by a mortality at the rate of two and a half per annum.'

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[*] These writs are such curiosities, that we subjoin them as given by Madox in his 'Exchequer.'

'Rex Vicecomitibus Londoniæ salutem. Præcipimus vobis, quod cuidam Urso nostro Albo quem mittimus usque Turrim nostram Londoniæ ibidem custodiendum, et custodi ipsius singulis diebus quamdiu fuerint ibidem, habere faciatis quatuor denarios ad sustentationem suam.'

'Rex Vicecomitibus Londoniæ salutem. Præcipimus vobis quod custodi Albi Ursi nostri, qui nuper missus fuit nobis de Norwagiâ et est in Turri nostrâ Londoniæ, habere faciatis unum musellum et unam cathenam ferream, ad tenendum Ursum illum extra aquam, et unam longam et fortem cordam ad tenendum eundem Ursum piscantem in aqua Thamisiæ; et custum, &c. computabitur, &c.'

The remains of *Ursus spelæus* are not confined, in Germany, to the caverns, for, in 1820, the author last quoted found in the collection of the monastery of Kremsminster, near Steyer, in Upper Austria, skulls and bones of the species in consolidated beds of gravel, forming a pudding stone, and dug for building near the monastery. Necker de Saussure found them also in the clefts of the rocks containing iron ore at Kropp, in Carniola.

The remains of bears have been detected in the cave at Kirkdale, in that at Paviland, in Kent's hole, Banwell cave, &c. in England; and generally in the ossiferous caverns of the south of France. The bones found in the largest proportion at the Grotte d'Echenoz, on the south of Vesoul, by M. Thirria, and examined by Cuvier, were those of *Ursus spelæus*. Bones of bears have been also found in the osseous breccia at Pisa, Nice, &c.

Great Cavern Bear.—*Ursus spelæus* (Blumenbach). The skull of this extinct species is considerably raised above the root of the nose, so that the forehead, which presents two convex elevations, is a good deal curved. Its size is about one-fifth larger than the largest of those of the *Brown Bear* (*Ursus arctos*), or of the Polar bear.

Ursus arctoideus (Blumenbach). The skull of this approaches nearest to the black bear of America, but it has less vertical elevation, and the muzzle is more elongated. It is equal in size to that of *Ursus spelæus*. The remains of these two fossil bears are found in the same localities; and Cuvier is of opinion, as has been observed, that they are only varieties of the same species.

A third species of cavern bear has been figured by Goldfuss, under the name of *Ursus priscus*, in his work upon the environs of Muggendorf, where it was found. Its skull is smaller, and differs less from the crania of living bears than those of the preceding species.

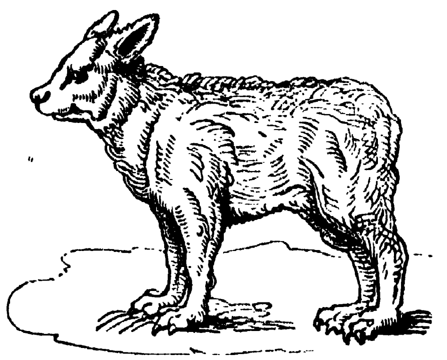
Those dentelated canine teeth which were attributed to bears, under the name of *Ursus Etruscus* and *Ursus cultridens* by Cuvier, Croizet and Jobert, and others, and to cats (*felis*) by Bravard, belong, according to Kaup, neither to a bear nor to a cat, and he adds his doubt whether they belonged to an animal which had the least affinity either to the one or the other.

He has formed a new genus for their reception, under the name of *Machairodus*, and adds that these canine teeth, and even the dentelations on their concave edge, have a perfect resemblance to the teeth of the *Megalosaurus*. [See MACHAIRODUS.]

We ought not, perhaps, to conclude this article without referring to those hybrids which were supposed to be the offspring engendered between a dog and a bear. Even at the present day there is an inclination to believe in the existence of such animals; nay, it is said that there is a creature now in England to which such a parentage has been attributed. We need hardly observe that it is extremely improbable, to use no stronger term, that two animals differing so widely in their dentition and general structure, in the periods of gestation and in their habits, should produce a mule; and yet whoever reads the following circumstantial account will, we think, come to the conclusion that the animal described and figured by the author was actually seen by him. In the 'Histoires Prodigieuses extraictes de plusieurs fameux autheurs, Grecs et Latins, sacrez et prophanes, divisées en cinq Tomes, Le Premier par P. Boaistuau, Tome Premier, Paris, 1582,' is the description and figure which, by the kindness of a friend, who possesses this curious book, we are enabled to lay before our readers.

'Histoire Prodigieuse d'un chien Monstrueux, engendré d'un Ours, et d'une dogue d'Angleterre, observé par l'autheur à Londres, avec plusieurs autres discours memorables, sur le naturel de cest animal.

CHAPITRE XXX.



'Par-ce (lecteur) que ce fut en Angleterre, en la fameuse cité de Lõdres, que i'observay premier le naturel et la figure de cest animal, lequel tu vois icy depeinct, i'ay bien voulu avant qu'en faire plus ample description (pour n'estre accusé d'ingratitude) celebrer la memoire de ceux desquelz i'ay receu quelque faveur.' The author then mentions 'la maiesté de la Royne Elizabeth,' of whom he states that he had a most gracious audience, speaks with gratitude of the favours which he received from Mõsieur l'Admiral d'Angleterre, Mõsieur Sicile (Cecil), premier secretaire de la Royne; and de Mõsieur le Cõte d'Arfort (Hertford); records the liberality of 'Monseigneur le Cõte de Candalle, de Monseigneur le Marquis de Trans, & de Monseigneur le Marquis de Nesle, qui estoient pour lors en ostage en Angleterre;' and thus returns to his hybrid:—'Mais afin que nous reprenons les erres de nostre matiere, cest animal monstreueux, que tu vois figuré au cõmencement de ce chapitre, est engendré d'une Dogue d'Angleterre & d'un Ours: de sorte qu'il participe de l'une & de l'autre nature: ce qui ne semblera estrange a ceux qui ont observé à Londres, cõme les dogues & les ours sont logez en de petits cachots, les uns aupres des autres: & quand ilz sont en leur chaleurs, ceux qui sont deputez pour les gouverner, enferment une ourse & une Dogue ensemble, de sorte que pressez de lieurs fureurs naturelles, ilz convertissent leur cruauté en amour, & de telles coniunctions, naissent quelquefois des animaux sẽblables a cestuy, encore que soit bien raremẽt: entre lesquelz i'en ay observé deux, quon avoit donné à Monseigneur le Marquis de Trans: l'un duquel il fist present à Monsieur le conte d'Alphestan, ambassadeur de l'Empereur: l'autre qu'il a faict amener en Frãce, sur lequel i'ay fait retirer cestuy au naturel, sãs que le peintre y ait rien obmis*.'

The author then goes on to cite instances of hybrids among quadrupeds, and thus continues: 'Mais afin de retourner à la descriptiõ de nostre animal, duquel tu vois la figure si mõstrueuse, qui ressemble à un ours racoursy aussi avoit les gestes, le muglemẽt, & toutes ses autres façons de faire plus aprochantes de l'ours que du chiẽ, mais ie te puis asseurer que c'est l'une des plꝰ furieuses bestes que l'on puisse regarder: car il n'y a espece d'animal auquel il ne s'attache, soit Ours, Lyon, Taureau & autres semblables: & si est si ardent en ses combatz, que depuis qu'il a mis la dent sur quelque beste, il se feroit plustost demembrer que laisser prise, cõme i'ay veu par experience à Londres quand on le fist combatre contre l'ours.' M. Boaistuau then alludes to the story of the hybrid engendered between a tiger and a bitch presented to Alexander the Great in India, and refers to Ælian, Diodorus Siculus, Strabo, Plutarch, and others.

The author of this description, is the Pierre Boaistuau, ou Boistuau, dit Launay, the subject of the following eulogy by Lacroix du Maine:—'Boaistuau a été homme très docte et des plus eloquens orateurs de son siècle, et lequel avoit une façon de parler autant douce, coulante, et agréable qu'autre duquel j'aye lu les ecrits.' He is also said to have been one of the first writers who recommended mothers to suckle their children.

The probability is, that he was deceived by the English bear-wards and dog-fighters of Elizabeth's time, and that some dog, selected for its bear-like appearance in certain points, an appearance aided by cropping the ears and tail, and other skilful artifices, was palmed upon him and upon others as a hybrid engendered between a dog and a bear,

BEARBERRY. [See ARCTOSTA'PHYLOS.]

BEAR LAKE. The great sheet of water to which the name of the Great Bear Lake has been given is situated in the north-west part of North America, near the arctic circle. Its shape is very irregular, the entire lake being formed by five arms or bays which have a common centre. The greatest diameter of the lake is in a direction north-east from

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* La mère qui le portat estoit chienne, & le Masle qui la couvrit estoit Ours.

Fort Franklin, which is placed on the south-western extremity of the lake, in 65° 12′ N. lat., and 123° 12′ W. long. The measurement from this point across the lake in the direction just mentioned to the north-eastern part of Dease's Bay, is about 150 geographical miles. The diameter taken in the direction south-east by east, from the western shore of Smith's Bay to the eastern shore of M'Tavish Bay, is rather more than 120 geographical miles. The depth of this great collection of fresh water has not been ascertained, but it is known to be very great; no bottom was found with 270 feet of line near to the shore in M'Tavish Bay. The water, which appears of a light-blue colour, is so transparent, that a piece of white rag let down into it was visible at the depth of ninety feet.

The exact height of the surface of Bear Lake above the arctic sea has not been ascertained with exactness, but a careful computation made by Dr. Richardson leads him to believe that it is not quite 200 feet above the ocean; and in this case the bottom of the lake must be below the surface of the sea, as is known to be the case with other of the great lakes in this quarter of America, and with lakes in other parts of the globe also. The bottom of the three great American lakes, Huron, Michigan, and Superior, is said to be 300 feet below the level of the Atlantic; and the lowest part of Loch Ness in Scotland is more than 700 feet below the level of the Murray Firth.

At the bottom of Dease's Bay, which forms the north-eastern arm of the lake, it receives the water of Dease River, which is the principal feeding stream. At the bottom of Keith Bay is the Bear Lake River, the outlet stream, which flows in a south-west direction for seventy miles to its junction with the Mackenzie River, in 64° 59′ N. lat., which point is about 500 miles from the mouth of that river in the arctic ocean. The breadth of Bear Lake River, throughout its whole course, is never less than 450 feet, except at one remarkable place, called the Rapid, about midway between the lake and Mackenzie River. The depth of the stream varies from one to three fathoms, and flows six miles per hour. It is joined in its course by several considerable branches of muddy water. The rapid just mentioned is caused by the river 'struggling through a chasm bounded by two perpendicular walls of limestone over an uneven bed of the same material.' The walls of the rapid are about three miles long and 120 feet high. The Bear Lake River flows into the Mackenzie at a right angle, and its entrance is distinguished by a very remarkable mountain, whose summit displays a variety of insulated peaks, crowded in an irregular manner. From the base of this mountain two streams of sulphureous water flow into the Mackenzie, and from the lower cliffs which front that river a dark bituminous liquor issues and discolours the rock.

Great Bear Lake contains an abundance of fish. Captain Franklin relates, that towards the end of summer and in autumn the produce of from fifteen to twenty nets kept in use at Fort Franklin was from three to eight hundred fish daily, of the kind called 'the herring-salmon of Bear Lake,' and occasionally some trout, tittameg, and carp.

(*Narrative of a Second Expedition to the Shores of the Polar Sea*, 1825-1827, by Captain Franklin: *Topographical and Geographical Notices of the North-west Territory*, read before the Geological Society of London, by Dr. Richardson.)

BEAR'S-FOOT. [See HELLEBORUS.]

BEAR'S WHORTLE-BERRY, the generic and specific characters of which have been given under the article ARCTOSTAPHYLOS UVA URSI, was used in medicine by the antients, fell into neglect, and was restored about the middle of the last century. It possesses manifest astringent and, under certain circumstances, diuretic properties. The leaves are the part of the plant which is used. These are destitute of smell, but have an astringent, bitter taste. Analysed by Meissner, 100 parts contained

Gallic acid	1·20
Tannin, combined with gallic acid	36·40
Resin	4·40
Chlorophylle	6·35
Extractive, with malates and other salts	3·31
Ditto, with citrate of lime	0·86
Gum and extractive	33·30
Lignin	9·60
Water	6·00
	101·42

The leaves are frequently intermixed with those of the *Vaccinium vitis Idæa*, or cow-berry, from which they may be distinguished by not being spotted nor having the margin revolute. The watery infusion of the cow-berry leaves treated with muriate of iron merely becomes green. The watery infusion of the bear-berry so treated throws down a blackish-grey precipitate; also with the leaves of the *Vaccinium uliginosum*, or bog whortle-berry. To distinguish them from these last is more important than from the foregoing, as the leaves of the bog whortle-berry are poisonous. They do not possess the leathery texture, or the reticulated character of the leaves of the *Uva ursi*. The leaves of the *Buxus sempervirens*, or common box, are often fraudulently intermixed with it. They may be distinguished by the veins of the leaves running from the mid-rib to the margin, not being reticulated like the *Uva ursi*, having an unpleasant smell, and yielding on analysis the principle called *buxin*.

The power of the leaves is greatest over the mucous membranes and the kidneys. The leaves rubbed with cold water yield up all their tannin and gallic acid, and thus afford an infusion of great efficacy in hæmorrhages from the prostate gland. In cases of tendency to calculous diseases, especially of the phosphatic diathesis, it is of great use when persevered in; also in catarrh of the bladder. It has been thought useful in consumption, and indeed its tonic power may render it occasionally serviceable. It is administered in powder, in the form of an infusion or decoction; but the best form in which it can be longest used is that of extract, as recommended by Dr. Prout.

(See Prout *On Diseases of the Urinary Organs*, second edit., p. 185.)

BEARD, the hair which grows upon the chin and contiguous parts of the face in men, and sometimes, though rarely, in women. With men its growth is the distinctive sign of manhood.

The fashion of the beard has varied greatly in different times and different countries; and some of the learned in curious trifles have spared no pains to record the changes. Hotoman wrote a treatise expressly on the beard, entitled *Pogónias* (ΠΟΓΩΝΙΑΣ), first printed at Leyden in 1586, and which, on account of its rarity, was reprinted at length by Pitiscus in his *Lexicon*.

The earliest notice of attention to its growth is probably in Leviticus, where the lawgiver of the Jews (chap. xix. 27) says, 'thou shalt not mar the corners of thy beard.'

Generally speaking, the growth of the beard was cultivated among the nations of the East, although it must be observed that most of the Egyptian figures in the antient paintings are without beards. In Rosellini's work we have a series of portraits of Egyptian kings, nearly all without beards. (See Plate No. x. &c.) The antient Indian philosophers called Gymnosophists were solicitous to have long beards, which were considered symbolical of wisdom. The Assyrians and Persians also prided themselves on the length of their beards; and St. Chrysostom informs us (*Opera*, edit. Montfauc. tom. xi. p. 378) that the kings of Persia had their beards interwoven or matted with gold thread. The figures on the Babylonian cylinders are usually represented with beards; and those on the reliefs from Persepolis in the British Museum.

Aaron Hill, in his *Account of the Ottoman Empire*, folio, London, 1709, p. 45, draws this distinction between the Persians and the Turks: 'the Persians never shave the hair upon the upper lip, but cut and trim the beard upon their chin, according to the various forms their several fancies lead them to make choice of; whereas the Turks preserve with care a very long and spreading beard, esteeming the deficiency of that respected ornament a shameful mark of servile slavery.' The slaves in the seraglio are shaved as a mark of servitude.

The Chinese are said to affect long beards, but nature having denied their natural growth, they are sometimes supplied to the chin artificially. (See *Nouveaux Memoires sur l'Etat de la Chine*, par le R. P. Louis le Comte, tom. i. p. 209.)

Athenæus (xiii. p. 565, edit. Casaub. Lugd. 1657) observes from Chrysippus's treatise *De honesto et voluptate*, that the Greeks wore their beards till the time of Alexander. The first person who cut his beard at Athens, he adds, was ever after called *κόρσην*, *the shaven.* Plutarch, in his *Life of Theseus*, mentions incidentally that Alexander cut off the beards of the Macedonian soldiers, that they might not be used as handles by their enemies in battle. The Greeks continued to shave the beard till the time of Justinian, under whom long beards came again into fashion, and so continued till the taking of Constantinople by the Turks, in 1453. The Greek philosophers usually made the beard a distinguishing feature in their appearance, whence the proverb *ἐκ πάγωνος σοφοί*. Persius (*Sat.* iv. 1) terms Socrates *magister barbatus*, the 'bearded master;' and Prudentius (*Apoth.* ii. 200) bestows the same title of *barbatus* upon Plato.

Varro (*De Re Rustica*, lib. ii. c. 11, edit. Commelin. 8vo. 1595, p. 126) and Pliny, following his authority (*Hist. Nat.* edit. Harduin, lib. vii. c. 59), say that the Romans did not begin to shave till the year of the city 454, when Publius Ticinius Mena brought over barbers from Sicily. Scipio Africanus, Pliny adds, was the first Roman who shaved every day. The first day of shaving among the Romans was subsequently considered as the entrance upon the state of manhood, and was kept with festivities like a birth-day. This practice is alluded to by Juvenal (*Sat.* iii. 186). Alexander ab Alexandro (*Genial. Dier.* lib. v. § 18) says the Roman youth consecrated the first fruits of their beards to some god, a custom which is illustrated by passages in Martial, Statius, and other authors.

Augustus, and the Roman emperors his successors, till Hadrian, shaved, as appears by their coins. Hadrian was the first emperor who wore a beard. (See *Dion. Cassius*, edit. 1750, lib. lxviii. p. 1132.) Plutarch says he wore it to hide the scars in his face. The emperors who followed Hadrian continued to wear beards. (*Pancirollus de Rebus Memorabilibus*, edit. Francof. 1660, p. 163.) Rasche, however, in his *Lexicon Rei Num.*, notices the circumstance of Augustus suffering his beard to grow as a mark of grief for the death of Julius Cæsar; and says that certain coins struck about this time at Aria, A.U.C. 710, present the portrait of Augustus bearded. Dion. Cassius, lib. xlviii. (edit. Hamb. 1750, tom. i. p. 551) says that Augustus put off his beard about A.U.C. 717, with great ceremony and feasting. Antoninus Pius and Marcus Aurelius wore lengthened beards as philosophers; though Aurelius, when young, is represented without a beard. [See ANTONINUS.] Some of the Africans wore long beards, as may be seen upon the coins of Juba. (See Rasche, *Lexicon Rei Num.* tom. ii. p. 2, col. 1018.)

It would require no small space to enter minutely into the history and vicissitudes of the beard among the nations of modern Europe. The Lombards, or Longobardi, derived their name entirely from its length: and Eginhard, the secretary of Charlemagne, informs us that the Merovingian or first race of French kings were equally solicitous to nourish its growth; though at a later period among the French it should seem that the common people shaved the whole beard.

The antient Britons, according to Cæsar (*De Bello Gall.* lib. v. c. 11), wore no beards except upon the upper lip. He probably spoke of the Kentish Britons only, or of the tribes who immediately adjoined them. Strabo speaks of the beards of the inhabitants of the Cassiterides, the Scilly islands, as in his time like those of goats. (*Geogr.* edit. Falconer, Oxf. 1807, fol. lib. i. p. 239.)

Tacitus, speaking of the Catti, one of the antient German nations, says, from the age of manhood they encouraged the growth of the hair and beard, nor would lay them aside till they had slain an enemy. (*De Mor. Germanorum*, c. xxxi.)

The Anglo-Saxons, at their arrival in Britain, and for a considerable time after, wore beards. Dr. Henry (*Hist. Gr. Brit.* 4to. Edinb. 1774, vol. ii. p. 585), however, says that after the introduction of Christianity their clergy were obliged to shave their beards in obedience to the laws, and in imitation of the practice of all the Western churches. This distinction, he adds, between the clergy and the laity subsisted for some time; and a writer of the seventh century complains that the manners of the clergy were then so corrupted, that they could not be distinguished from the laity by their actions, but only by their want of beards. By degrees the English laity began to imitate the clergy so far as to shave all their beards except the upper lip.

The English spies who were sent by Harold to discover the strength and situation of the Duke of Normandy's forces returned with the account that almost all his army had the appearance of priests, as they had the whole face with both lips shaven. (See Malmesbury, lib. iii.) The Normans, indeed, not only shaved their beards themselves, but when they became possessed of authority, they obliged others to imitate their example. It is mentioned by some of our historians as one of the most wanton acts of tyranny in William the Conqueror, that he compelled the English (who had been accustomed to let the hair of their upper lips grow) to shave their whole beards; and this was so disagreeable to many of them, that they chose rather to abandon their country than to lose their whiskers. (See *Mat. Paris*, edit. 1640; *Vit. Abbat. S. Albani*, tom. i. p. 46.) Ordericus Vitalis, p. 815, relates a curious anecdote of Henry I. submitting to lose his beard at the remonstrance and by the hands of Serlo, archbishop of Sees.

In the higher classes of society the beard, in a greater or a less degree, was encouraged by the English for a series of centuries, as is evident from the sepulchral monuments of our kings and chief nobility, and from portraits where they remain. Edward III. is represented upon his tomb at Westminster with a beard which would have graced a philosopher. Stowe, in his *Annals*, edit. 1631, p. 571, in his account of the reign of Henry VIII. under 1535, says, 'The 8th of May the king commanded all about his court to poll their heads, and, to give them example, he caused his own head to be polled, and from thenceforth his beard to be knotted, and no more shaven.' The practice of wearing the beard continued to a late period; and the reader will readily call to recollection the portraits of Paulet Marquess of Winchester, Cardinal Pole, and Bishop Gardiner, all ornamented with flowing beards, in the reign of Mary I. The commentators on Shakspeare show that in the reign of Elizabeth beards of different cut were appropriated to different characters and professions. The soldier had one fashion, the judge another, the bishop different from both. Malone has quoted an old ballad, inserted in a miscellany entitled *Le Prince d'Amour*, 8vo. 1660, in which some of these forms are described and appropriated. (See Reed's *Shaksp.* 8vo. Lond. 1803, vol. xii. p. 399.) Taylor, the Water-Poet, in his *Whip of Pride* (Works, fol. 1630, p. 43), likewise describes the fashions of the beard as they still continued to subsist in his time:

> 'Now a few lines to paper I will put,
> Of men's beards' strange and variable cut;
> In which there's some do take as vain a pride
> As almost in all other things beside.
> Some are reap'd most substantial like a brush,
> Which makes a nat'ral wit known by the bush;
> (And in my time of some men I have heard,
> Whose wisdom have been only wealth and beard.)
> Many of these the proverb well doth fit,
> Which says, "Bush natural, more hair than wit."
> Some seem as they were starched stiff and fine,
> Like to the bristles of some angry swine;
> And some (to set their love's desire on edge)
> Are cut and pruned like to a quickset hedge.
> Some like a spade, some like a fork, some square,
> Some round, some mow'd like stubble, some stark bare;
> Some sharp, stiletto fashion, dagger like,
> That may with whisp'ring, a man's eyes outpike;
> Some with the hammer cut, or Roman T,
> Their beards extravagant reform'd must be;
> Some with the quadrate, some triangle fashion,
> Some circular, some oval in translation;
> Some perpendicular in longitude,
> Some like a thicket for their crassitude,
> That heights, depths, breadths, triforme, square, oval, round,
> And rules geometrical in beards are found.'
>
> * * * * * *
>
> The barbers thus (like tailors) still must be
> Acquainted with each cut's variety.'

The beard now gradually declined, and the court of Charles I. was the last in which even a small one was cherished. After the restoration of King Charles II., mustachios or whiskers continued, but the rest of the face was shaven; and in a short time the process of shaving the entire face became universal.

The beard went out of fashion in France in the reign of Louis XIII., and in Spain when Philip V. ascended the throne. In Russia it continued somewhat longer. Butler, in his *Hudibras* (part ii. canto i. Grey's edit. 8vo. Cambr. 1744, vol. ii. p. 299), alludes to the beard 'cut square by the Russian standard;' which Grey illustrates by the following extract from *The Northern Worthies, or the Lives of Peter the Great and his illustrious Consort Catherine*, 8vo. Lond. 1728, pp. 84, 85: —'Dr. Giles Fletcher, in his *Treatise of Russia*, observes, that the Russian nobility and quality accounting it a grace to be somewhat gross and burly, they therefore nourished and spread their beards to have them long and broad. This fashion continued among them till the time of the Czar Peter the Great, who compelled them to part with these ornaments, sometimes by laying a swingeing tax upon them, and at others by ordering those he found with beards to have them pulled up by the roots, or shaved with a blunt razor, which drew the skin after it, and by these means scarce a beard was left in the kingdom at his death: but such a veneration had this people for these ensigns of gravity, that many of them carefully preserved their beards in their cabinets, to be buried with them, imagining perhaps that they should make but an odd figure in the grave with their naked chins.'

The reader who desires further information on the history of beards may consult the lexicons of Hoffmann and Pitiscus for the classic times; and in Bulwer's *Anthropometamorphosis, or Artificial Changeling*, 4to. Lond. 1653, p. 193-216, Scene xii. is a whole chapter 'On the opinion and practice of diverse nations concerning the naturall ensigne of manhood appearing about the mouth;' quoted from innumerable authors, antient and modern.

Shaving the beard in derision was, throughout the East, considered to be the greatest mark of ignominy which could be inflicted upon an enemy; and to pluck a man's beard was the highest mark of insult. The Eastern origin of some of our old romances is, perhaps, in no circumstance more visible than in the descriptions which are so frequently given of giants cutting off the beards of princes who fell into their hands. Drayton alludes to this practice in his *Polyolbion*, Song iv.:

> 'And for a trophy brought the giant's coat away,
> Made of the beards of kings.'

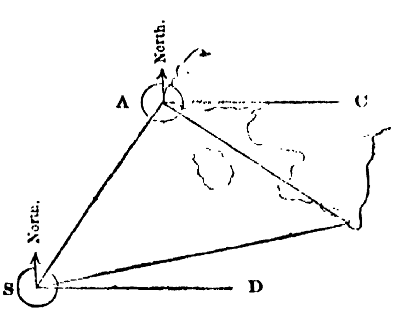
See also Warton's Observations on Spenser's *Fairy Queen*, edit. 1762, vol. i. p. 24.

The suffering of the beard to grow in the time of mourning is a custom which has been already incidentally alluded to. Levi, in his *Succinct Account of the Rites and Ceremonies of the Jews at this present time*, 8vo. Lond. says, that for the seven following relations, viz. a father or mother, brother or sister, son or daughter, husband or wife, they must not shave their beards, nor cut their nails neither of their hands or feet, nor bathe for the term of thirty days; which term is called in Hebrew *Shyloshim*, which means thirty days.

To beard, in modern English, means to set at defiance, to oppose face to face in a hostile manner. Shakspeare, in Henry IV. act iv. scene 4, makes Douglas say,

> 'No man so potent breathes upon the ground
> But *I will beard him*.'

BEARING, the direction of the line drawn from one point to another. It is a term usually applied to the points of the compass, as follows:—If the line B A be in a N.W. direction from B, A is said to *bear* N.W. of B, or the *bearing* of A is N.W. To take *bearings* is to ascertain the points of the compass on which objects lie. The following example will serve to familiarize the word, by connecting it with a simple problem of trigonometry:—



Cape B is 20 miles from Cape A, and bears S.E. of it. On board a ship S, Cape A is observed to bear N.N.E., and B bears E. by N.: required the position of the ship. Draw S D, A C, both east; then the angle D S B is one point of the compass, and the angle D S A six points: consequently A S B is five points of the compass, or 56° 15′; but C A S and A S D are together equal to two right angles, or sixteen points, of which A S D is six points, therefore C A S is ten points; but C A B is four points, therefore S A B is six points, or 67° 30′: therefore, in the triangle A B S, the side A B and two angles are known, whence the other sides, or the ship's distance from the two capes, can be found. The easiest method of solving this problem is by actual construction, the results of which are generally as accurate as the data.

In a manner somewhat similar, the distance of a ship from a headland might be found by observing its bearings at two different hours of the day; and knowing the course and the distance sailed in the intermediate time. If all the bearings are by compass, as in the second problem, the magnetic variation need not be allowed for, because all the bearings are equally wrong: but if one or more be true bearings, taken from a map, as in the first problem, then the bearings observed by the compass must be corrected. [See AZIMUTH; COMPASS, AZIMUTH.]

BE'ARN, one of the thirty-two provinces into which, previously to the Revolution, France was divided. It constitutes now, with Les Pays des Basques [see BASQUES], the department of Basses Pyrénées or the Lower Pyrenees. The name Béarn is derived from Beneharnum, an antient town in this country, first mentioned in the *Itinerary* of Antoninus: its exact position is undetermined.

The greatest part of Béarn lies amidst the Pyrenees, the summits of which form its southern boundary, and separate it from Spain. On other sides, with reference to the old territorial divisions of France, it is bounded by different parts of Gascogne, or Gascony, viz., by Bigorre on the east, by the Pays des Basques on the west, and by Armagnac and Chalosse *on the north*[*]. It is a very mountainous country, as may be supposed from its being occupied by the branches of the Pyrenees. The Pic du Midi (9732 feet) and Mount Billari (8475 feet) are upon or within its frontier. From the mountains numerous streams descend, which drain different valleys, and fall into the Adour, of whose basin Béarn forms a part. The name Gave, which is synonymous with river, is common to the streams of this country: they are distinguished from one another by some additional designation, such as the name of a town on the bank. The rapidity of these Gaves prevents their being used for navigation, but they abound with fish, especially trouts, salmons, pikes, and a kind of small salmon of exquisite flavour called toquans. The two principal streams are the Gave d'Oléron and the Gave de Pau. The Gave d'Oléron is formed by the Gave d'Aspe and the Gave d'Ossau, or d'Osseau, which latter rises in the Pic du Midi: these unite close to the town of Oléron, and flow in a north-west direction. The Gave de Pau rises in Mont Perdu in Spain, crosses the country of Bigorre, and flows north-west through Béarn, passing Pau and Orthès, till it unites with Gave d'Oléron. Their joint stream falls into the Adour soon after their union. The length of the Gave d'Oléron (measuring from the source of the Gave d'Ossau) may be estimated at 75 to 80 miles, and that of the Gave de Pau at 100 to 110: these measurements are, however, only approximations. Some of the smaller streams which flow into the Gaves d'Oléron and de Pau contain particles of gold.

The soil is dry and in many parts unsuited to tillage, though the banks of the Gave de Pau contain some plains fertile in grain. Little wheat or rye is grown; but millet and maize are the principal kinds of grain cultivated, and afford subsistence to the bulk of the people. The hills yield a good deal of wine, of which those of Jurançon and Gan near Pau hold the first rank. Flax is also an article of considerable importance in the agriculture of Béarn, and serves to supply the linen manufacture. Many of the mountain-tops are mere heaths covered with fern, which the inhabitants use for manure; but some afford good pasturage, and others are covered with woods which yield timber for the carpenter or the shipwright, and furnish the masts which are floated down by the tributaries of the Adour, and by the Adour itself, to Bayonne, from whence they are sent to different parts of France. The horses of Béarn are much esteemed; they are small, but strong and lively.

The mineral treasures of this district are considerable. Lead, iron, and especially copper are found in several places; and very fine marble is worked. Three brine springs, one near the town of Saillies, not far from the left bank of the Gave de Pau; a second towards St. Jean Pied de Port[†]; and a third near Révenac, a few miles south of Pau, supply the neighbourhood with salt. Talc, bitumen, and asphaltum are also found. There are mineral waters at Aigues-Caudes or les Eaux Chaudes in the Valley of Ossau. The temperature of these waters is 35° of Réaumur or 111° nearly of Fahrenheit; they are recommended for disorders of the head and stomach. The spring called the 'fountain of Arquebusade' is recommended for the cure of ulcers and wounds. There are other mineral waters at les Eaux Bonnes in the immediate neighbourhood of those just mentioned; and in one or two other places, as Escot in the Valley of Aspe, and Ogou or Ogeu, near Oléron.

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[*] In the Map of France in Provinces, published by the Society for the Diffusion of Useful Knowledge, the district of Chalosse is not marked. It is included in the larger division of Les Landes.

[†] We insert this second spring, as belonging to Béarn, with considerable diffidence. Our authority is the *Encyclopédie Méthodique*; but unless the phrase, 'du côté de St. Jean Pied de Port,' is used with considerable latitude, the spring must be beyond the frontiers of Béarn.

The principal manufacture carried on in the district seems to be that of linen. In the *Voyage dans les Départemens du Midi de la France*, by Aubin Louis Millin (Paris, 1811), the number of weavers in and around Pau was estimated at nearly a thousand, who were chiefly if not wholly occupied in manufacturing the large square handkerchiefs called, from the district, mouchoirs de Béarn. The uniformity of price, pattern, and workmanship in these articles made them appear like the production of the same manufactory. The hams which go by the name of Bayonne hams, because exported from that town, are cured in Béarn, and are considered to owe their exquisite flavour to the salt of Saillies already noticed.

The capital of Béarn was Pau, on the Gave de Pau, the birth-place of Henry IV. of France and of many other eminent persons. Pau had in 1832 a population of 10,597 for the town, or 11,285 for the whole commune. Orthèz or Orthès, on the Gave de Pau, had at the same time 5195 inhabitants for the town, or 7121 for the whole commune. Saillies or Salies had 4730 for the town, or 8420 for the whole commune; and Oléron, at the junction of the Gaves d'Aspe and Ossau, had 5850 for the town, or 6458 for the whole commune, or, including the suburb of St. Marie and its commune, 9829. [See Pau, Ole'ron, Orthe's, and Salies.] Besides these more important places there are within the boundaries of the district Nay or Nai, on the Gave de Pau above Pau, which carries on a considerable trade in linen cloths and handkerchiefs, and gave birth to Abbadie, a celebrated Protestant theological writer. We have no authority for the population of Nay later than the *Dictionnaire Universel de la France* (Paris, 1804), which gives it as 2262. Navarreins, on the Gave d'Oléron, is a fortified place, and contained in 1826 a population of 1385. It owes its origin to Henry d'Albret, maternal grandfather of Henry IV., and is of a square form, regularly built, in the midst of a fertile plain.

The Béarnois are a lively race, of industrious habits, sober and frugal, but they are charged with selfishness and dissimulation. According to Piganiol, who wrote above a century ago, a number of the peasantry used to go to Spain, to till the ground or gather in the hay harvest, and to bring back their earnings to their own land. Their patois or dialect is agreeable, copious, and expressive, well suited to poetry or music.

Béarn was included in the country of the Aquitani, according to the threefold division of Gaul laid down by Julius Cæsar in the beginning of his *Commentaries*. It was subjugated by the Romans, and upon the downfall of their empire came into the hands of the Goths, from whom it was wrested by the Franks under Clovis. It was, however, subsequently lost by the Franks, but came again into their possession in the time of Charlemagne. In 820, Louis le Debonnaire, son of Charlemagne, conferred the vice-county of Béarn on the son of the Duke of Gascony, and it continued in the possession of his family till 1134. By failure of the male line of his posterity it passed into other families, as those of the Viscounts of Gavaret, the Moncades, who were among the chief nobles of Catalonia, and the Counts of Foix. These last acquired possession of the district of Bigorre, and intermarried with the royal family of Navarre. By this intermarriage the kingdom of Navarre, the principality of Béarn, and the counties of Foix and Bigorre came into the hands of one possessor. On the failure of heirs male they were conveyed by marriage into the family of D'Albret, and augmented by the inheritance of that family. Of this family sprang Henry IV., who inherited the country of Béarn and Lower Navarre, and, as it seems, of Foix, with the title of king of Navarre; but the country of Upper Navarre, south of the Pyrenees, had been wrested from his great-grandfather by the ambition of Ferdinand V., King of Arragon. On the accession of Henry to the throne of France, Béarn was united with France, and has continued to be so united ever since. It was one of the provinces which enjoyed the privilege of a local house of assembly of the nobility, clergy, and commons.

According to Expilly, the population of Béarn was ascertained in 1698 to be 198,000. Expilly estimated it at 210,000 in 1762. From the entire change of the territorial divisions of France, it is difficult to give the present population; but the three arrondissements of Pau, Oléron, and Orthès, which nearly coincide with Béarn, had in 1832 a population of 277,106.

(*Encyclopédie Méthod.*, *Géog. Physique;* Piganiol de la Force *Nouvelle Description de la France; Voyage dans les Départemens du Midi de la France*, par A. L. Millin, &c.)

BEATIFICATION, an act by which the pope permits a 'servus Dei,' *i. e.* an individual who died in good repute as a virtuous and holy man, to be worshipped, and his image to be placed on the altar within the limits of some diocese, province, or town, or within the houses of the religious order to which the deceased belonged, defining at the same time the peculiar mode of worship allowed, by prayers, masses, &c., until the time he may be duly canonized as a saint. The distinction between beatification and canonization is this: the first is a mere permission to honour and worship in some particular district, and the object of this veneration is styled Beatus; canonization is an injunction to venerate the object of it as a saint, 'Sanctus,' acknowledged by the whole church. Originally it was the bishop of the diocese who allowed the veneration or worship of deceased individuals whom he deemed worthy of it, and when the worship extended to other dioceses, and by degrees to the church in general, 'with the consent, tacit or expressed, of the supreme pontiff,' then the worship, which was before that of simple beatification, acquired the character of canonization. But when, in after times, the question both of beatification and canonization was referred to the Roman See, the pontiffs, in granting the first, always made the distinction: 'dummodo propter præmissa canonizatus, aut canonizata, non censeatur.' (Benedicti XIV., *Opera*, vol. i. *de Servorum Dei Beatificatione.*) In the same chapter Benedict XIV. determines the regulations as to the proceedings, evidence, &c., to be gone through previous to granting the writ of beatification. It may be granted to two classes of individuals, martyrs and confessors. After beatification has been obtained, a new suit and fresh evidence of sanctity are required in order to obtain the canonization of the same individual. In May, 1807, five Beati were canonized, or declared Saints, in St. Peter's church, by Pius VII. The ceremony is very expensive, and therefore is not performed very frequently. It is only since the pontificate of Alexander VII. that the ceremony of beatification has been performed in St. Peter's church, with great solemnity. Applications for the honour of beatification are generally made by the friends or relations of the deceased, or by the brethren of the religious order of which he was a member; evidence of his conduct and merits is collected, and laid before a congregation of cardinals and prelates; counsel is employed by the applicants, while another counsel opposes the petition and endeavours to find flaws in the evidence. This latter office is performed by a legal officer of the Roman See, who has been nicknamed *l'Avvocato del Diavolo*, 'the devil's advocate,' as he performs what is considered an ungracious part, by opposing the admission of a candidate into the category of the saints.

BEATON, CARDINAL DAVID, Archbishop of St. Andrew's, and Lord High Chancellor to Mary Queen of Scotland, was a younger son of John Beaton or Bethune of Balfour, in the shire of Fife, by a daughter of David Monypenny of Pitmilly in the same shire; and nephew to Bishop James Beaton, Lord Chancellor to King James V. He was born in 1494 (Keith's *Bishops*, p. 36), and after passing through his grammar education, was, on the 26th October, 1511, matriculated of the university of Glasgow (M'Crie's *Melville*, vol. i. App. Note M.), whence he was sent to France[*] to study the civil and canon laws. On the death of Secretary Panter in 1519, he was appointed resident for Scotland at the French court; and about the same time his uncle the chancellor bestowed on him (then designated only clericus S. Andreæ diocesis) the rectory of Cambuslang, in the diocese of Glasgow. In 1523 his uncle, now translated from that see to the primacy of St. Andrew's, resigned in his favour the rich monastery of Arbroath in commendam, and also prevailed on the pope to dispense with his taking the habit for two years: this time he spent in France, and then returned to Scotland, where we immediately find him in parliament as abbot of Arbroath; and in October, 1527, John Beaton of Balfour and others having been indicted for an assault upon the sheriff of Fife, and found bail for their appearance, the abbot became bound to relieve John Wardlaw of Torry of the cautionry. (Pitc. *Crim. Trials*.) On the fall of the Earl of Angus, and the surrender of George bishop of Dunkeld, he was appointed Lord Privy Seal, in 1528—the same year in which the great convent of Blackfriars at Edinburgh, in the immediate neighbourhood of which Beaton and his uncle had their magnificent abode, was burnt down to the ground by a sudden fire. In February, 1533, Beaton, now prothonotary apostolic, was sent ambassador to France, with Secretary Erskine, to treat of a league with that crown, and also of a matrimonial alliance with the Princess Magdalene; and when the King of Scots proceeded thither on the same object, Beaton was one of the lords of the regency appointed by commission, of date 29th August, 1536, to conduct the government in his absence. On Queen Magdalene's decease, he was joined in an embassy to the house of Guise, to treat of a match with Mary, widow of the Duke of Longueville; and we find that, agreeably to the common practice of that time, he, before going abroad, obtained the king's special protection for his friends and dependants in his absence. (*Reg. Privy Seal*, x. 163-4.) It is probable that, when in France on this occasion, he procured the papal bull of date 12th February, 1537, for the erection of St. Mary's College at St. Andrew's. In November, 1537, he was made a denizen of France, and on the 5th of next month consecrated Bishop of Mirepoix in Languedoc. On his return home he was made coadjutor in the see of St. Andrew's, and successor to his uncle, who being now much advanced in years, devolved on him the charge of church affairs. He seems afterwards to have gone abroad again, for on the 20th December, 1538, Pope Paul III. advanced him to the cardinalate, by the title of Sancti Stephani in Monte Cœlio, the same style which was borne by Cardinal John de Salerno, who presided at a council of the Scottish clergy in 1201; and on the 20th June, 1539, the King of France directed new letters of naturalization in his favour, with a further clause allowing his heirs to succeed to his estate in France, though born and living in Scotland. About this time also we find him 'legatus natus' of the Roman See. On the death of his uncle in the autumn of 1539, he was fully invested in the primacy of St. Andrew's, the privy seal being again returned to the Bishop of Dunkeld. These accumulated honours he no doubt mainly owed to the influence of his deceased uncle; but Beaton was already both an able and zealous son of the church. His authority, zeal, and ability now made him truly formidable: and that he might devote them all to the politics of the church, with consent of the king and pope, he devolved his diocesan duties on the dean of Restalrig, as his suffragan. On the 28th May, 1540, he convened a large assembly of ecclesiastics and others in the cloisters of St. Andrew's, and on their conviction of Sir John Borthwick for heresy in holding Protestant opinions, pronounced sentence of outlawry and forfeiture against him, with solemn burning of his effigy at the market-cross of the city. But not liking the odium which must ensue to the clergy if they continued to put their sentences in execution, a promise was made to the king of 30,000 ducats of gold yearly, and 100,000 ducats more out of the estates of condemned heretics, if he would appoint a judge in heresy. The avaricious James consented, and named Sir James Hamilton, natural brother of the Earl of Arran, to the office, in which, however well fitted for it by his intolerance and ferocity, he fortunately did not long remain, being attainted of treason and beheaded.

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[*] Both Crawford and Keith say this was in his sixteenth year; but from the preceding date, furnished by Dr. M'Crie's work, this appears to be a mistake.

On the 20th December, 1542, the king died, leaving an infant daughter, eight days old, heir to the throne, but for whose safety or that of the kingdom during her minority he had made no provision. Beaton had in the interval gone abroad; for in the Lord Treasurer's accounts we find a large sum entered 'for expenses made upon the *Great Unicorn*, Jul. 11, 1541, at her passing to France with the cardinal:' but he returned before the death of James, and on the king's demise he produced a testament, which he affirmed was subscribed by his majesty, appointing him regent of the kingdom and guardian to the infant queen. The document was a base forgery; and as the nobility had experienced enough of Beaton's rule, they roused from his inactivity James, Earl of Arran, next heir to the queen, and appointed him to the regency. The power, however, which Beaton failed to obtain directly, he obtained by his address; and not only got the nobles to accede to his views of government, but also induced the timid regent publicly to abjure the doctrines of the Reformation.

In December, 1543, the great seal was taken from the Archbishop of Glasgow and bestowed on Beaton, whom also, on very strong letters from the regent, Pope Paul III., by bull of 30th January following, constituted his legate *à latere* in Scotland. Thus he was placed at the head both of church and state, including also the whole civil judicature of the kingdom, being *ex officio* principal of the Court of Session, the supreme judicatory in civil causes; and as he did not scruple to employ these extensive powers for furthering his own views, he appears to have been looked upon as a sort of wild beast whom it was not murder to destroy. The king of England, in particular, whose friendship was renounced at the instigation of the cardinal and the popish faction, for an alliance with France, anxiously desired his death; and in the instructions of the English privy council of date 10th April, 1544, the Earl of Hertford was commanded, in his inroad into Scotland, to sack and destroy Edinburgh and Leith, 'and this done, pass over to the Fife-land, and extend like extremities and destruction to the towns and villages there, not forgetting amongst all the rest so to spoil and turn upside down the cardinal's town of St. Andrew's, as the upper part may be the nether, and not one stone stand upon another, sparing no creature alive within the same, specially such as either in friendship or blood be allied unto the cardinal.' Henry soon found in Scotland spirits congenial with his own; for on the 17th of the same month we find the Earl of Hertford communicating to him a design by Wishart and others to seize or slay the cardinal, could they secure his majesty's protection and support.

Beaton was haughty to all; but to the reformers he was particularly oppressive. In the beginning of 1545-6 he held a visitation of his diocese, and had great numbers brought before him, under the act which had passed the parliament in 1542-3, forbidding the lieges to argue or dispute concerning the sense of the holy scriptures. Convictions were quickly obtained; and of those convicted, five men were hanged and one woman drowned; some were imprisoned, and others were banished. He next proceeded to Edinburgh, and there called a council for the affairs of the church; but they had scarce assembled when tidings were brought that George Wishart, an eminent reformer and worthy man, was at the house of Cockburn of Ormiston. The cardinal instantly left the meeting, and went personally to the sheriff of the county to have Wishart apprehended, which being done, Wishart was carried over by the cardinal to St. Andrew's, and shut up in the tower there. The following month the Lord Justice General of Scotland held a court at Perth at the instigation of the cardinal, and 'condemned to death and gart hang four honest men for eating of an goose in lent. Likeways they caused drown ane young woman because she wald not pray to our ladie and other sancts in the tyme of her birth.' (Pitscottie, 453.) Beaton afterwards returned to St. Andrew's, and called a convention of his clergy, at which Wishart was condemned for heresy, and adjudged to be burnt; a sentence which (so violently were the clergy bent on the accomplishment of their ends) was passed in the face of a command by the regent that the trial should proceed at Edinburgh, and was put in force by the cardinal and his clergy in defiance of the regent, and without the aid of the civil power. For this conduct the cardinal was loudly applauded by his creatures. The cardinal afterwards proceeded to the abbey of Arbroath, to the marriage of his eldest daughter by Mrs. Marion Ogilvy of the house of Airly, with whom he had long lived in scandalous concubinage, and there, with infamous effrontery, he gave her in marriage to the eldest son of the Earl of Crawford, and with her 4000 merks of dowry. The marriage articles subscribed by him are yet extant. (Keith's *Hist.* p. 42.) He then returned to St. Andrew's, where, on Saturday, 29th May, 1546, he was put to death in his own chamber by a party of reformers, headed by Norman Leslie, heir of the noble house of Rothes, who, we find, had on the 24th April, 1545, given the cardinal a bond of *manrent*[*], and who, on private grounds, had a personal quarrel with the cardinal. His death was fatal to the ecclesiastical oligarchy, which, under him, trampled alike on law, liberty, and reason.

Three works of the cardinal's are named: *De Legationibus*

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[*] Bonds of manrent were long common in Scotland. They were in the nature of the obligations of homage and fealty by a tenant to his feudal lord.

suis; De Primatu Petri; and *Epistolæ ad diversos.* We have said that he was at the head of the civil judicature of the kingdom, being, in his capacity of Lord Chancellor, principal of the College of Justice or Court of Session. We now add, that in his time two remarkable alterations appear to have been made in the customs of that court, and both manifestly derived from the papal tribunals, with which the cardinal appears to have been very familiar. The first of these was the custom (continued to this day) of the judges of the Court of Session changing their name on their elevation to the bench, in imitation, no doubt, of the like custom on elevation in the papal hierarchy. The first judges of the court were indeed called *lords* of session, as the judges of the previous court were called *lords* of council; but the individual judges of the court of daily council were never designated as the present judges of the Court of Session are, nor were the early judges of the latter court so designated. The first we have yet noticed bearing the present style is James Balfour, parson of Flisk, whom we find called 'My lord of Flisk.' (Pitcairn's *Criminal Trials*, January, 1566.) The other change we have to notice was the appointment of lords ordinary to sit in the *outer house* to hear and determine causes; in conformity, perhaps, to a like practice in the tribunals of Rome. It is almost certain that there was no such distinction as an Outer and Inner House at the first institution of the Court of Session: no trace of any such is perceived in the documents of that time, but, on the contrary, every thing tends to demonstrate that all the judges sat only in the *council house;* but soon after the cardinal's time an outer house appears.

BEATS, in music (a term always used in the plural), are the pulsations, throbbings, or beatings, resulting from the joint vibrations of two sounds of the same strength and nearly the same pitch; that is, of two sounds differing but little, if at all, in intensity, and which are almost, but not exactly, in unison. When two organ-pipes, or two strings sounded together, are nearly, but not accurately of the same pitch, *i.e.* are not in perfect tune, they produce throbbings that may be compared to the rapid beating of the pulse; and to these, Sauveur, the discoverer of the phenomenon, applied the term *battemens*, or beats, which has since been adopted by all writers on the subject.

Dr. Smith has, in his *Harmonics*, entered fully into the subject of *beats*, and founded hereon his well-known system of temperament. [See TEMPERAMENT.] In his ninth proposition he says, that 'if a consonance of two sounds be uniform without any beats or undulations, the times of the single vibrations of its sounds have a perfect ratio; but if it beats or undulates, the ratio of the vibration differs a little from a perfect ratio, more or less, according as the beats are quicker or slower.' His experiment in demonstration of this is practical, easy, and satisfactory. 'Change,' says Dr. Smith, 'the first string of a violoncello for another about as thick as the second. Then screw up the first string, and while it approaches gradually to a unison with the second, the two sounds will be heard to beat very quick at first, then slower and slower, till at last they make a uniform consonance without any beats or undulations. At this juncture, either of the strings struck alone, by the bow or finger, will excite large and regular vibrations in the other, plainly visible; which show that the times of their single vibrations are equal.' For the vibrating motion of a musical string puts other strings in motion, whose tension and quantity of matter dispose their vibrations to keep time with the pulses of air propagated from the string that is struck; a phenomenon explained by Galileo, who observes, that a heavy pendulum may be put in motion by the least breath of the mouth, provided the puffs be often repeated, and keep time exactly with the vibrations of the pendulum. 'Alter the tension,' continues Dr. Smith, in pursuing his experiment, 'of either string a very little, and the sounds of the two will beat again. But now the motion of one string struck alone makes the other only start, exciting no regular vibrations in it; a plain proof that the vibrations of the strings are not isochronous.' And while the sounds of both are drawn out with an even bow, not only an audible but a visible beating and irregularity is observable in the vibrations, though in the former case the vibrations were free and uniform. Now measure the length of either string between the nut and bridge, and when the strings are perfect unisons, mark, at the distance of one-third of that length from the nut, one string with a speck of ink. Then place the edge of the nail on the speck, or very near it, and press the string, when, on sounding the remaining two-thirds with the other string open, a uniform consonance of fifths will be heard, the single vibrations of which have the perfect ratio of 3 to 2. But on moving the nail a little downwards or upwards, that ratio will be increased or diminished; and in both cases the imperfect fifths will beat quicker or slower, accordingly as that perfect ratio is more or less altered.

Dr. Young remarks of *Beats*, that they furnish a very accurate mode of determining the proportional frequency of vibrations, when the absolute frequency of one of them is known; or the absolute frequency of both, when their proportion is known; for the beats are usually slow enough to be reckoned, although the vibrations themselves can never be distinguished. Thus, if one sound consists of 100 vibrations in a second, and produces with another acuter sound a single beat in every second, it is obvious that the second sound must consist of 101 vibrations in a second. (Young's *Philosophy*, i. 390.)

In tuning unisons, as in the case of two or more pipes, or strings, the operator is guided by beats. Till the unison is perfect, more or less of beating will be heard, as the sounds more or less approach each other. 'When the unison is complete,' observes Sir John Herschel, 'no beats are heard: when very defective, the beats have the effect of a rattle of a very unpleasant kind. The complete absence of beats affords the best means of attaining by trial a perfect harmony. Beats will also be heard when other concords, as fifths, are imperfectly adjusted. (Herschel on *Sound.*)

Dr. Smith, in the learned work of which we have here availed ourselves, gives some useful practical rules for tuning by means of beats, the substance of which will be found under the head of TUNING.

BEATTIE, JAMES, a poet and metaphysician of the 18th century, was born in Scotland, at Lawrencekirk, a village in the county of Kincardine, Oct. 25, 1735. His parents kept a small farm, and were esteemed, not only for their honesty, but for a degree of cultivation and intellect not common in their station. James Beattie received his first education at the village school. He entered the Marischal College, Aberdeen, in 1749; obtained a bursary, or scholarship, and other honours; and after completing his course of study was appointed, August 1, 1753, schoolmaster to the parish of Fordoun, at the foot of the Grampians, six miles from Lawrencekirk. In this solitary abode his poetic temperament was fostered by the grand scenery which surrounded him; and his works evince the zeal and taste with which he studied the ever-changing beauties of nature. He attracted the favourable notice of a neighbouring proprietor, the celebrated Lord Monboddo, with whom he ever after maintained a friendly intercourse. In June, 1758, he was elected usher to the grammar-school of Aberdeen; and in 1760, it seems rather by private interest than in consequence of any distinction which he had then attained, he was appointed professor of moral philosophy and logic in the Marischal College.

His first and chief business was to prepare a course of lectures, the substance of which, as they were remodelled by long study and frequent revision, was given to the world in his *Elements of Moral Science.* His first poetical attempts were published in London in 1760, and received with favour; but most of the pieces contained in this collection (which is now very rare) were omitted by the author's maturer judgment in later editions of his works. Some will be found in the Appendix to Sir William Forbes's *Life of Beattie.* The same tacit censure was passed by the author upon his *Judgment of Paris*, published in 1765. In 1762 he wrote his *Essay on Poetry*, which, however, he retained a long time in manuscript, until it was published, with others of his prose works, in 1776. The *Minstrel* was commenced in 1766; but during that year all his pursuits, except those which were compulsory, were interrupted by a bad state of health. June 28, 1767, he married Miss Dun, daughter of the rector of the grammar-school at Aberdeen.

During this year he conceived the notion of composing his *Essay on Truth*, written avowedly to confute the moral and metaphysical doctrines advanced by Hume, which at that time were supposed to be making numerous converts; and which, perhaps, derived as much of their popularity from the fashionable acceptation and high repute of their author, as from the arguments on which they rested. Beattie's motives for engaging in this task will be found fully detailed in a long letter to Dr. Blacklock (Forbes's *Life*, vol. i.

p. 129), and they do credit to his sincerity and courage; for it was no slight thing for a young and almost unknown man to attack an author formidable at once from ability, party connexion, and high standing in society; and this he did not in the language of deference, but with the uncompromising hostility of one who believes his antagonist to be not only a mistaken but a mischievous person. If Beattie could not quite attain his own wish of being 'animated without losing his temper,' something must be conceded to his deep feeling of the importance of the subjects in dispute. The *Essay*, however, was received with much anger by Mr. Hume and his friends, as a violent and personal attack; and that Beattie's zeal might require some tempering we may conclude from knowing that an intended preface to the second edition (published early in 1771) was cancelled by the advice of some of his best friends. His work appeared in May, 1770, under the title *Essay on the Nature and Immutability of Truth, in opposition to Sophistry and Scepticism.* The plan of it is thus given by his biographer. 'Dr. Beattie first endeavours to trace the several kinds of evidence up to their first principles, with a view to ascertain the standard of truth, and explain its immutability. He shows, in the second place, that his sentiments on this head, how inconsistent soever with the genius of scepticism, and with the principles and practice of sceptical writers, are yet perfectly consistent with the genius of true philosophy, and with the practice and principles of those whom all acknowledge to have been most successful in the investigation of truth; concluding with some inferences or rules, by which the most important fallacies of the sceptical philosophers may be detected by every person of common sense, even though he should not possess acuteness of metaphysical knowledge sufficient to qualify him for a logical confutation of them. In the third place, he answers some objections, and makes some remarks, by way of estimate of scepticism, and sceptical writers.'—Forbes, p. 167.

The *Essay on Truth* was only the first part of an intended lecture on the evidences of morality and religion. Habitual ill health, and an avowed dislike to severe study, prevented Dr. Beattie from completing his design.

The first canto of the *Minstrel* was published anonymously in 1771. It was most favourably received by the public, and honoured by the warm praise of Gray, the more valuable because the praise was accompanied by a letter of minute criticism. This is preserved in Forbes's *Life* (vol. i. p. 197). In the same year he visited London, for the first time since he had been known as an author; and received distinguished and flattering notice from Dr. Johnson, Lord Lyttleton, and the best literary society of the metropolis.

It was the wish of his friends to obtain some permanent provision for one who had no patrimony, whose literary profits were small, and whose only other resource was the scanty income of his professorship; and it was thought that his exertions in the cause of revealed religion entitled him to this mark of public favour. In 1773 he again visited London to urge his claim, and owing to the powerful interest which he was then able to command, he obtained a pension of 200*l.* The King (George III.) received him with distinguished favour: and the University of Oxford conferred on him the honorary degree of D.C.L. During this visit, Sir Joshua Reynolds painted and presented to him the well-known portrait, which contains the allegorical triumph of Truth over Sophistry, Scepticism, and Infidelity. In the same autumn there occurred a vacancy in the University of Edinburgh, which it was thought would open the chair of moral philosophy to Dr. Beattie; but this preferment, though strongly urged upon him, he declined for the sake of peace and quiet. At this time he was engaged in finishing the second book of the *Minstrel*, which was published in the following spring.

Several of Beattie's friends, and some eminent persons who do not appear to have been influenced by personal regard, were desirous to induce him to take orders in the English church, and more than one living was pressed upon his acceptance. In 1774 he received the offer of a living worth near 500*l.* per annum, from Dr. Thomas, Bishop of Winchester. It appears that Beattie took these proposals into serious consideration, and that he entertained no objections on the score of discipline or doctrine; but he refused them principally on the ground that his acceptance might give a handle to the opponents of revealed religion for asserting that the *Essay on Truth* was written for the sake of preferment. 'Partly,' he says, 'because it might be construed into a want of principle, if, at the age of thirty-eight, I were to quit, with no other *apparent* motive than that of bettering my circumstances, that church of which I have hitherto been a member.' It is not superfluous to praise this delicacy and independence of feeling, because many persons whom it would be harsh to condemn as having sold their opinions for preferment, have at least shown a culpable neglect of their own characters and the interest of truth, by accepting preferment under circumstances which were almost sure to fix the imputation of venality upon them. (See Beattie's *Letter to Dr. Porteus*, Forbes, vol. i. p. 359.)

The *Essay on Truth* was re-published in 1776, with three other essays:—*On Poetry and Music, as they affect the Mind; On Laughter and Ludicrous Composition; On the Utility of Classical Learning.* These were followed at intervals by other essays and dissertations, chiefly taken from his academical lectures:—*Dissertations Moral and Critical, on Memory and Imagination, on Dreaming, on the Theory of Language, on Fable and Romance, on the Attachments of Kindred, and Illustrations of Sublimity*, 1783; *Evidences of the Christian Religion*, 1786; *Elements of Moral Science*, vol. i. containing *Psychology and Natural Theology*, 1790; vol. ii. containing *Ethics, Economics, Politics, Logic*, and a *Dissertation on the Slave Trade*, 1793. But he appears to have engaged in no new investigations or studies; and his letters explain the cause of this to have been ill health, and consequent disinclination to labour, aggravated by mental depression, and a considerable share of domestic disquiet, produced by an hereditary disposition to insanity in his wife. His life passed until 1790 without marked events, in the discharge of his academical duties; varied in his long summer vacations by not unfrequent visits to London, and to many persons eminent by their talents or rank, who sought his society for the sake of his powers as a companion, as much as for his reputation. In 1790 he suffered an irreparable loss in the death of his eldest son at the age of twenty-two, a young man of great promise; and his declining health received another shock in 1796 in the unexpected death of his only surviving son after a week's illness, in the eighteenth year of his age. He said, in looking on the corpse, 'I have now done with the world,' and he never again applied to study of any sort. The closing years of his life exhibit a melancholy scene of gloom and distress, bodily and mental. He was struck by palsy in April, 1799, and after one or two subsequent attacks, expired August 18th, 1803.

In the relations of private life, and in his public duties as a teacher, Dr. Beattie was most amiable; and he commanded, in an unusual degree, the esteem and affection of his pupils, as well as of a large circle of friends. It is to be recorded to his honour, that long before the abolition of the slave trade was brought before parliament, Beattie was active in protesting against that iniquitous traffic; and he introduced the subject into his academical course, with the express hope that such of his pupils as might be led by fortune to the West Indies would recollect the lessons of humanity which he inculcated.

Of his writings, the *Minstrel* is that which now probably is most read. It exhibits a strong feeling for the beauties of nature, which will probably prevent its being entirely forgotten. Beattie's metaphysical writings have the reputation of being clear, lively, and attractive, but not profound. The *Essay on Truth* was much read and admired at the time of its publication, but has fallen into comparative neglect, with the doctrines against which it was especially directed. (*Life of Dr. Beattie*, by Sir W. Forbes, two vols. 4to.)

BEAUCAIRE, a town in France on the right bank of the Rhône in the department of Gard, 432 miles S.S.E. of Paris by Moulins, Clermont, Mende and Nîmes. It is in 43° 48′ N. lat., 4° 36′ E. long.

Beaucaire seems to have existed in antient times under the name of Ugernum. It probably was at first a dependency of Nîmes. In 1734 a Roman road leading from Nîmes towards Beaucaire was discovered by M. Vergile de la Bastide. On this road were several Roman mile-stones, numbered, as it seems, in the direction from Nemausus (or Nîmes) as the capital of the district to Ugernum. Some of these mile-stones not having been displaced afforded the means of ascertaining by actual measurement the length of the Roman mile, which was found to be 752 toises 4 feet French measure, equal to 1604 yards 12 inches English.

Some of the mile-stones had been removed, as it is supposed, by Constantius, general and father-in-law of the Emperor Honorius, and formed into a monument in memory of some person or persons of distinction, who fell in a victory which he gained (A.D. 411) over the Franks and Allemanni, who attempted to force him to raise the siege of Arles. In the seventh century Ugernum was regarded as a place of great strength, and was perhaps rather a castle or military post than a town of any extent. (Millin, Expilly, D'Anville, &c.)

In the eleventh century the name Ugernum gave place to that of Belli-Cadrum or Belcadro (whence the modern Beaucaire), derived either from the square form of the castle or of the towers of the castle, or from the beauty of the district in which it was placed; for Cadré, or Cäiré, in the dialect of Languedoc and Provence signifies a square, or generally a space; and Beaucaire may be translated 'handsome district' (*beau quartier*). (Millin, Malte-Brun.) The name Ugernum, though lost by the town, was traceable in that of an island in the Rhône opposite to it, which was called Gernica, a corruption seemingly of *Ugernica*. This island, by the drying up of the branch of the Rhone which surrounded it on the east side, is now united to the town of Tarascon, the lower part of which is still called Gernegue.

In the middle ages Beaucaire was under the Counts of Provence, until it was ceded in 1125 to the Count of Toulouse; and in the troubles which that illustrious family suffered for their protection of the Albigenses it was twice the scene of contest. In or about the year 1217 it opened its gates to Raymond, son of Raymond VI., Count of Toulouse; and the garrison placed in it by Simon Montfort (leader of the Crusade against Raymond), which retired into the castle, was forced to surrender. Louis VIII., King of France, besieged it within ten years after, but in vain. To the Counts of Toulouse Beaucaire is said to owe its celebrated fair, which constitutes at present its chief claim to notice; but this is doubtful, though the fair, at any rate, existed long before the year 1463, when Louis XI. of France granted certain privileges to those who frequented it.

Beaucaire is situated in a pleasant country; and the view across the Rhône, which is here a magnificent stream, to the picturesque castle and town of Tarascon, is very fine. Tarascon and Beaucaire are just opposite one another, so as to appear like parts of the same town. The communication between them was long maintained by a bridge of boats, or rather by two bridges leading from each bank to a stone causeway, the remains, as it seemed, of a former bridge; but the passage by these bridges of boats was dangerous when the violent mistral or south wind blew. Of late years a suspension bridge of three arches, 441 metres, or 1447 feet, long has been erected: five of these suspension bridges have been erected of late across the Rhône between Lyons and Beaucaire. The situation of Beaucaire on the banks of the Rhône is highly favourable to its commerce. The quay is well built, and convenient for the landing of goods. A canal runs from Beaucaire to Aigues Mortes, and there divides into two branches: one communicating directly with the Mediterranean at the village of Repauset, the other passing through several of the etangs or lakes to the port of Cette. This canal enables boats to avoid the mouths of the Rhône, the navigation of which is uncertain and dangerous, and sometimes impossible.

The town of Beaucaire was, in the middle of the last century, surrounded by walls, which were, however, useless for defence. These walls probably still remain, for later authorities speak of the beauty of the gate which leads towards the Rhône. The streets are crooked and narrow; but for this it would be considered a handsome town. The number of houses is great in proportion to the population, which in 1832 was only 9967. These are fully inhabited only during the fair, and during the greater part of the year the closed apartments and almost deserted streets form a marked contrast to the activity which prevails at the fair time. The high prices then obtained for lodgings and accommodation of every kind, by enabling the inhabitants to subsist during the rest of the year with little exertion, have been fatal to the industry of the town. There are no manufactures, nor are any great commercial undertakings entered into. They cultivate a few vineyards and olive plantations. M. Millin says that they have scarcely a tailor or a shoemaker in the town, and that for clothing they must either wait the return of the fair, or resort to Tarascon for a supply. (*Voyage dans les Départemens du Midi de la France*, Paris, 1808.)

There is an antient church, founded in the ninth century by the Count of Narbonne the portal of which is adorned with sculptures relating to the birth of Christ. Before the Revolution there were two other churches, both antient: two convents for men, one of Cordeliers and one of Capuchins, and an establishment of priests, 'de la doctrine Chrétienne,' who had a college under their direction. There were also an abbey for Benedictine nuns, two other nunneries (one of Ursulines and one of Hospitalieres), and two hospitals. (Expilly, *Dict. des Gaules et de la France*, 1762.)

There are some remains of the antient castle of which mention has been already made. It stood on an eminence commanding the town, and was demolished in 1632, because it had fallen into the hands of some rebels against Louis XIII. It appears to have been an object of contention in the religious wars of the sixteenth century, between the Catholics and the Huguenots, or Protestants: the latter are charged with having committed great disorders here in 1562. (Piganiol de la Force; Expilly.)

The great fair of Beaucaire, in the number of persons who resort to it, is equal to almost any in Europe. It is said that the fair of 1833, confessedly the greatest for some years, was attended by from 70,000 to 80,000 persons, and that business was done to the amount of 160,000,000 francs, or 6,400,000*l.* sterling. Mr. M'Culloch (from whose *Dict. of Commerce* we take this statement) suspects exaggeration, but Malte Brun (*Géographie Universelle*) speaks of 100,000 as the usual number of persons who resort to it. They come from the middle and southern parts of Europe, and from the Levant.

This fair had its origin in the middle ages, and according to some, was established by Raymond VI. Count of Toulouse; and there is no account that it has been suspended since its establishment, except in 1721 and 1722, when the plague devastated Provence and part of Languedoc. At first the fair was held in the town, but the increasing business rendered it necessary to hold it out of the town in a neighbouring meadow, where tents were erected. This alteration had taken place long before Martinière published his *Grand Dictionnaire* (vol. ii. 1730.) Its present extent may be judged of by the statement given above. We take the following particulars from M. Millin. (*Voyage dans les Départemens du Midi de la France*, Paris, 1808.)

Long before the fair the principal merchants hire a house, or an apartment; every room is filled with beds, and the owner contents himself for the time with the garret. The wool merchants and the drapers occupy, in alternate years, the houses in certain streets, so that the householders in each street have alternately a profit by the high prices that the drapers are made to pay. The linen-drapers have their quarter, the leather-sellers theirs; the Jews occupy always the same spot. Not only are the shops filled, but stalls are erected and covered with cloth; and benches of stone serve for the display and sale of small wares. The names of the dealers, their residence, and their trade, are written on squares of linen, &c., which are suspended by ropes across the streets, and form, by the medley of the colours and the variety of their inscriptions, a singular spectacle. The town being insufficient for the thousands who resort to it, a new town of wooden huts and of tents is run up in a meadow on the borders of the river, having also its public places, its streets, &c. The merchants of the same country, or the same town, usually occupy the same street, which has the effect of bringing to the same spot wares of a similar kind. One street contains the drugs, spices, and soap of Marseilles; another the pomatum and wash-balls of the perfumers of Grasse; and a third the perfumes and liqueurs of Montpellier. Goods of all sorts are exposed for sale, including even cameos, medals, and other antiques. One whole street contains nothing but onions and garlic. Not only are the town and the meadow filled with a dense and busy population, but the river is crowded with boats (arranged in regular order according to their form, their cargo, and the place from which they come), in which many persons take up their habitation. Vessels of various forms from Genoa, Catalonia, or Marseilles; the boats which come from the interior down the Rhône; and those which come from the coast of the ocean by the Canal du Midi (which unites the ocean with the Mediterranean), may be seen there. The vessel which first arrives salutes the town with a musket or pistol shot, and receives in return a sheep, the skin of which, stuffed with straw, and accompanied with flags, indicates the superior diligence or good fortune of the ship-master. Besides the merchants who frequent the fair, the business done, and the vast concourse of people draw a number of other persons: there are notaries and legal gentlemen, members of the medical profession to attend to cases of sickness or accident, and undertakers to bury the dead. A small chapel occupies the extremity of the plain where the huts and tents are erected: in this mass is said; and as the worshippers cannot be all contained in the chapel, they kneel in the meadow with their faces turned towards the altar. A great number of rosaries are sold here.

Restaurateurs, cafés, billiard-tables, and places for dancing offer their attractions; jugglers, showmen with wild beasts, and rope-dancers, seek to profit by the opportunity; and gaming and debauchery are prevalent. Pickpockets have taken place of the highwaymen who once infested the roads, and plundered those who came to or left the fair. The government of the fair is in the hands of the Préfet of the department, by whom it is solemnly opened.

The fair was originally established for three days, but the intervention of three saints' days (Magdalen, St. Ann, and St. James), on which, though not reckoned as business days, business goes on, extends the period to six days, viz., from the 22d to the 28th July. At its close the merchants depart, the Jews and Catalonians being usually the last to go; and the town is left to its ordinary dullness till the return of this extraordinary scene.

BEAUFORT, the name of several places in France, of which one only is of sufficient importance to require notice. *Beaufort en Vallée* (or *Beaufort la Ville*), with its suburb *Beaufort en Franchise* (otherwise *Beaufort hors la Ville*), is in the department of Maine-et-Loire, about seventeen miles, measured in a straight line, E. by S. of Angers, the capital of the department. The town and suburb are separated from each other by a branch of the little river Coesnon or Couanon, which soon afterwards falls into the Authion, one of the minor feeders of the Loire. The chief trade of the town in former times consisted in corn; but the more modern authorities speak of manufactures of coarse linens for the use of the army, hempen cloths, serges, druggets, and hats. Hemp is grown in the surrounding district, which produces also corn and vegetables. Before the Revolution there were in Beaufort la Ville two parish churches and a convent of Recollets, a class of Franciscans. The population, in 1832, comprehending, probably, both Beaufort la Ville and its suburb, was 3288 for the town, and 5914 for the whole commune. 47° 25′ N. lat., and 0° 13′ W. long. from Greenwich. (Piganiol de la Force, *Dictionnaire Universel de la France.*)

BEAUFORT, CARDINAL. Henry Beaufort, Bishop of Winchester and Cardinal of St. Eusebius, was a son of John of Gaunt, Duke of Lancaster (father of Henry IV.), by his mistress Catherine Swynford, whom he subsequently married. His children by this woman, all born before wedlock, were legitimated by the name of Beaufort in the twentieth year of the reign of Richard II. We are unable to state the exact year of Cardinal Beaufort's birth; but from the circumstance of his having been consecrated a bishop when 'very young,' in 1397, and that he is spoken of on his death-bed as 'an old man of eighty,' we infer that it was about the year 1370. He studied at Oxford, Cambridge, and Aix-la-Chapelle. In 1397 he was created bishop of Lincoln (he is erroneously called bishop of London in the *Parliamentary History*); became chancellor of the University of Oxford in 1399; and in 1404 succeeded the celebrated William of Wyckham as bishop of Winchester. In the parliaments of 1404 and 1405 he officiated as lord chancellor, an office which he filled four times during his life. The bishopric of Winchester was then, as at present, one of the richest endowments in the English church; and Beaufort, from habits of frugality according to some writers, from sordid covetousness according to others, multiplied his riches so as to become the wealthiest subject in England. He advanced his nephew, Henry V., by way of loan, out of his own private purse not less than 28,000*l.* during his wars in France; and also lent the infant king, Henry VI., 11,000*l.*, sums which, the circumstances of the times being considered, were of enormous magnitude.

On the death of Henry V. in 1422, Beaufort (with his brother, afterwards Duke of Exeter) was appointed guardian of his infant successor: Beaufort was also a member of the council of regency, of which the king's uncle, Humphrey, Duke of Gloucester, was the nominal head. The struggle for supremacy between these ambitious men, which soon assumed the character of a fierce personal contest, is the most prominent feature of the internal history of England from the year 1424 to the year of their death, in 1447. The prelate being a man 'well skilled in all the means prudence suggests to the ambitious to accomplish their ends' (we quote the words of Rapin), ultimately triumphed in the struggle, which on more than one occasion threatened to inflict upon the country all the ills of civil war. The quarrel first assumed a warlike aspect in 1426. The citizens of London were of the party of the duke. To overawe them the bishop strengthened the garrison of the Tower, which the council, under his influence, had intrusted to the care of Sir Richard Wydevile, a creature of his own. This occurred during a temporary absence of Gloucester on the Continent. On his return he demanded lodgings in the Tower, but was refused, Wydevile having orders to admit 'no one more powerful than himself.' In his resentment the duke ordered the gates of the city to be closed against the prelate. The next morning the retainers of Beaufort attempted to force the gates at London Bridge. The citizens flew to arms, and bloodshed was with difficulty averted by the Archbishop of Canterbury and the Prince of Portugal, who happened to be then in England, prevailing upon the two parties to suspend their feuds till the Duke of Bedford, the regent, who had been written to, should arrive from Paris. The bishop's letter to the Duke of Bedford on this occasion is worth quoting:—

'I recommend me unto you with all my heart; and as you desire the welfare of the king our sovereign lord, and of his realms of England and France, and your own health and ours also, so haste you hither; for, by my troth, if you tarry we shall put this land in a jeopardy with a field: such a brother you have here. God make him a good man. For your wisdom knoweth that the profit of France standeth in the welfare of England. Written in great haste on Alhallow Even, by y^r^ true servant to my lives end,

'HEN. WINTON.'

(Hall's *Chronicles*; the letter is also printed in the second series of Ellis's *Hist. Letters.*)

The Duke of Bedford hastened from Paris to reconcile the rivals, but found it expedient to refer the matter to a parliament summoned for the purpose at Leicester. This parliament is known by the nickname of the 'parliament of bats,' a nickname which, in its origin, aptly illustrates the temper of the partizans of the bishop and of Gloucester and throws some light on the state of manners. In order to prevent the consequences of strife among armed men the members of the parliament summoned at Leicester were ordered to leave their swords and other weapons usually worn by the gentry at their inns: their followers however, with a view to defeating this prohibition, attended them with *bats*, or clubs, on their shoulders; and when these also were forbidden they concealed stones and plummets of lead in their sleeves and bosoms. (*Parliamentary History*, vol. i. p. 354.)

Among other charges put forward by the Duke of Gloucester, in a bill of impeachment against his uncle Beaufort, was an accusation that he had hired an assassin to take away the life of the late King Henry V., at the time Prince of Wales; and that he had encouraged the prince to usurp the throne before the death of his father. Gloucester professed to make this charge on the authority of Henry himself; but the bishop triumphantly opposed to that testimony the fact that Henry had, to the last moment of his life, honoured him with his friendship and confidence. After much wrangling and recrimination, the matter was referred to the arbitration of four spiritual and four temporal peers, who awarded that Gloucester should be 'good lord to the bishop, and have him in affection and love,' and that the prelate should preserve to the duke 'trew and sad love and affection, and be ready to do him such service as pertaineth of honesty to my Lord of Winchester and to his estate to do.' A formal public reconciliation then took place between the two disputants; but the bishop felt the award to be so much of a reproof, that he resigned the chancellorship, and obtained leave to go abroad. (The letter of leave is given in the second series of Ellis's *Hist. Letters.*) Beaufort accompanied Bedford in his return to France; and at Calais received the welcome intelligence that the pope had raised him to the dignity of cardinal, and had appointed him legate *à latere*, for the purpose of directing an English force in a crusade against the Hussites in Bohemia. [See **Bedford, Duke of**.]

In 1429 Cardinal Beaufort succeeded in destroying the power of his rival Gloucester, by having the young king crowned, and by inducing the parliament to declare on the occasion that the office of protector, filled by the duke, was, *ipso facto*, at an end. From being at the head of the council of regency, Gloucester was thus reduced to his rank as a peer. From this time till his death the councils of the cardinal predominated in the administration.

A powerful party, however, headed by the Duke of Gloucester, opposed itself to the administration of the cardinal. The spirit of the age was averse to the rule of ecclesiastical statesmen; and the House of Commons in particular had directed its attention to the question of church reform, as essential to good government. In a meeting of peers, in 1431, it was proposed that, as the dignity of cardinal was, by the law of the land, incompatible with the possession of a bishopric in England, Beaufort should be removed from the see of Winchester, and compelled to refund its revenues from the day that he had accepted the cardinal's hat. Gloucester followed up this motion with a series of charges, to the effect that Beaufort had incurred the penalties of præmunire in having accepted the papal bull, contrary to the express prohibition of the late king, and had exempted himself as legate from the jurisdiction of the see of Canterbury. The same charges were renewed in a more formal manner by Gloucester in 1434. (The articles are given at length in Rapin and the *Parliamentary History* from Hall.) He accused the cardinal, also, of having amassed wealth by dishonest means, of having usurped the functions of sovereignty, appointing embassies, and releasing prisoners on his own authority, and estranging from the person of the young king his relatives and the council of the regency. That these charges were founded on truth is evident from the fact that two acts of parliament were passed, one in 1432, the other in 1437, indemnifying Beaufort against the penalties of præmunire, and pardoning him for all crimes committed up to the 20th of July in the last-named year. The arrest and probable murder of Gloucester are usually ascribed to his fierce and courageous denunciation of the ecclesiastical counsellors of the king. Gloucester's death took place on the 28th of February, 1447.

The cardinal survived his great rival but six weeks. His death-bed has been painted in immortal colours by Shakspeare (*Henry VI.* Part 2), but the imagination of the poet has supplied the darkest features of the picture. Shakspeare represents him as expiring in an agony of despair:—

> Lord Cardinal, if thou think'st on heaven's bliss,
> Hold up thy hand, make signal of thy hope.—
> He dies, and makes no sign.'

But we know from the authority, Hall, which Shakspeare has followed in the less harrowing details of the scene, that the cardinal's worldliness was confined to expressing his regret that money could not purchase life, and that death should have cut him off at the moment when his rival to the great object of his ambition (the popedom) had been removed. Hall's version is given on the authority of one Baker, the cardinal's chaplain; and the last words are, 'I pray you all to pray for me.' His will, moreover, to which two codicils are attached, on the 7th and 9th of April (he died on the 11th), is still extant (Nichols's *Royal and Noble Wills*, p. 311), indicating a state of feeling more worthy of a Christian prelate. His great wealth was distributed, according to the provisions of his will, in charitable donations. Not less than 4000*l.* was allotted for the relief of the indigent prisoners in Newgate, Ludgate, the Fleet, Marshalsea, King's Bench, and the prison attached to the Southwark manor of the diocese of Winchester; and the hospital of St. Cross at Winchester still exists as a monument of his munificence. Cardinal Beaufort was buried in the beautiful chantry which bears his name in Winchester Cathedral.

(Hall's *Chronicles;* Turner's *Modern History of England*; Rapin's *History;* Lingard's *History;* and Milner's *History of Winchester*. In the two last-named works the reader will find a much more favourable account of the last moments of the cardinal, given on the authority of an eye-witness, in the *Continuation of the History of Croyland*, than we have adopted in the text.)

BEAUFORT, MARGARET, COUNTESS OF RICHMOND AND DERBY, is entitled to honourable mention as an eminent patroness of literature, after the manner of the age in which she lived. She was of royal descent, being the daughter and heiress of John Beaufort, Duke of Somerset, grandson of John of Gaunt, Duke of Lancaster, third son of Edward III. This descent was not strictly legitimate, the name of Beaufort having been first given by John of Gaunt to his natural children by Catherine Swynford, who were legitimated by act of parliament under Richard II. Margaret Beaufort was born in 1441; and was thrice married. first to Edmund Tudor, half brother to Henry VI., created Earl of Richmond, by whom she had one son, afterwards Henry VII.; secondly to Sir Henry Stafford, a younger branch of the ducal house of Buckingham; thirdly to Lord Stanley, afterwards Earl of Derby. By the two last marriages she had no issue. She died in 1509, and is buried at Westminster, where her tomb may be seen in the south aisle of Henry VIIth's Chapel.

The Countess of Richmond was rich, pious, charitable, and generous. Her attention to the formal observances of religion prescribed by the Papal church was strict even to rigour. To her bounty Christ's College, Cambridge, founded in 1505, and St. John's College, Cambridge, projected and endowed by her, but not chartered till 1511, owe their existence. The latter, however, was deprived of the greater portion of its revenues, that which consisted of the foundress's estates, by Henry VIII., who sued for and recovered them as heir-at-law; and the wealth which this distinguished college now enjoys is chiefly due to the liberality of later benefactors. The Countess of Richmond also established a professorship of divinity, with a salary of 20 marks, in each university; the holders of which are called Lady Margaret's professors. Their incomes have been increased, at Cambridge by the annexation of the rectorial tithes of Terrington in Norfolk, by James I.; and at Oxford, by the revenues of a prebendal stall in Worcester Cathedral. The Countess of Richmond also appointed a public preacher at Cambridge, salary 10*l.*, whose duties are now confined to the delivery of one Latin sermon yearly.

Walpole has given this noble lady a place in his *Catalogue of Royal and Noble Authors*, as the translator of two books:—1. *The Mirroure of Golde to the Sinfull Soul*, translated from a French translation of the *Speculum Aureum Peccatorum*, printed by W. de Worde in 1522; 2. Translation of the fourth book of Dr. J. Gerson's *Treatise on the Imitation and Following the Blessed Life of our Most Merciful Saviour Christ*, printed at the end of Dr. William Atkinson's translation of the three first books—Pynson, 1504. The following treatises are said to have been published by her desire or encouragement:—

Scala Perfeccionis, Englysshed, the Ladder of Perfection, by Walter Hilton—W. de Worde, 1494. fol.

Treatise concernynge the Seven Penetencyall Psalmes, by Fisher, Bishop of Rochester, printed by W. de Worde in 1509, and Pynson, 1510. 4to.

The Ship of Fooles of this World, translated by Henry Watson into prose, and printed by W. de Worde, 1517. 4to.

Bishop Fisher preached her funeral sermon, entitled *A Mornynge Remembraunce*, printed by W. de Worde, and reprinted in 1708, with a biographical preface by the Rev. Mr. Baker. (Walpole's *Catalogue*, continued by Park, 1806; and Kippis's *Biog. Britannica*.)

BEAUFORT, LOUIS DE, was born of a French family, settled in Germany or Holland, as far as we may presume from the scanty information we can find of his early life. He was for a time tutor to the young prince of Hesse Homburg; but he became known to the learned world by his *Dissertation sur l'Incertitude des Cinq Premiers Siècles de l'Histoire Romaine*, 8vo. 1738. He was one of the first modern writers who carried the spirit of critical investigation into the narrative of the first five centuries of the Roman commonwealth; he showed that both Livy and Dionysius could not be implicitly trusted, and that it required a process of very acute and careful discrimination to separate the truth from the legendary fables of early Roman history. Among other things he maintained that Porsenna did really conquer Rome after the expulsion of Tarquinius. Niebuhr remarks, when speaking of Beaufort's dissertation (vol. i. p. 539, note), 'that the critical examination of this war is the most successful part of that remarkable little work.' His next work was *La République Romaine, ou Plan Général de l'Ancien Gouvernement de Rome*, 2 vols. 4to. La Haye, 1766. The author treats at length and systematically of the institutions of that celebrated republic, of its senate, its populus and plebs, its comitia, its consuls and tribunes, of the laws and tribunals, of the religion of the country and its ministers, of the various classes of society and their respective rights, and the condition of the allies and subjects of Rome. This work met with great approbation, and maintained its ground as one of the best works upon the Roman republic previous to Niebuhr's *History of Rome*, which, however, was left unfinished by the author. Auger's work, *Sur la Constitution de Rome*, and Adrien de Texier's *Du Gouvernement de la République Romaine*, 3 vols. 8vo. Hamburg, 1796, are perhaps the only works written in the last century that deserve to be mentioned together with Beaufort's. He wrote also *Histoire de Germanicus*, 12mo. 1741, which he dedicated to the Landgrave of Hesse Homburg. Beaufort was a member of the Royal Society of London. He died at Maestricht in 1795.

BEAUGENCY, a town in France, in the department of Loiret, on the road from Paris through Orleans to Blois and Tours, eighty-six miles S.S.W. of Paris and fourteen or fifteen miles S.W. of Orleans, in 47° 47′ N. lat., and 1° 36′ E. long. from Greenwich. It is situated at the foot of a hill on the right or N.W. bank of the Loire, over which is an antient bridge of twenty-two arches, according to the older authorities (Piganiol de la Force, Expilly, *Encyclopédie Méthodique*), or of thirty-nine, according to the last edition of Malte Brun's *Géographie Universelle*, Paris, 1832. This bridge is divided into two parts by an island in the centre of the river. The town contains the remains of an old castle, the antiquity of which some would carry up to the time of the Gauls; it has been ruined by time and by the various sieges which the town has sustained. Before the Revolution there was a chapter of the regular canons of St. Augustin, the successors of a much larger number of religious of that order, who were established here in former days. The monastery in which they lived was destroyed by the Calvinists in the civil war of the sixteenth century; and though a part of the building was repaired, the establishment seems never to have recovered its greatness. There are two hospitals for the children and the aged among the poor.

The manufactures of the town consist of leather, woollen stuffs, and hats; there are some distilleries, and several mills for the supply of the town and neighbourhood with flour. A considerable trade is carried on in wine (which is of superior quality), brandy, corn, and the goods manufactured in the place. The population, in 1832, was 4182 for the town, and 4883 for the whole commune. At Beaugency are quarries of a calcareous freestone, which has been used for the foundation of the cathedral of Orleans, and that of the bridges of Orleans and Tours.

Two councils were held in this town: at the latter of these the marriage between Louis VII. (*le Jeune*) and his queen, Eleanor of Guienne, was annulled on the plea of relationship: her subsequent marriage with the Count of Anjou, afterwards Henry II. of England, added largely to the possessions of the English kings in France. (*Dictionnaire Universel de la France*; Expilly's *Dictionnaire des Gaules et de la France*.)

BEAUHARNOIS, EUGE'NE, son of Viscount Alexandre Beauharnois, was born in September, 1780, and received his early education at the College of St. Germain-en-Laye. His father was a member of the National Assembly, in which he embraced the popular side, and afterwards served with distinction in the army of the Rhine, in 1792. He was, however, accused by the Jacobins, taken before the revolutionary tribunal, condemned, and beheaded, in July, 1794, when he was only thirty-four years of age. His widow Josephine married, in 1796, Napoleon Bonaparte, who treated her children, Eugene and Hortense, as if they had been his own. Eugene accompanied Bonaparte to Italy, and afterwards, in 1798, to Egypt, where he acted as his aide-de-camp. After Bonaparte became first consul, Eugene was made chef-d'escadron in the Consular Guards, in which capacity he was present at the battle of Marengo. In 1804 he was made colonel-general of the Chasseurs of the Guards. When Bonaparte became emperor, Eugene was created a prince of the new empire; and in 1805, on being appointed viceroy of the (so called) kingdom of Italy, which comprised Lombardy and the northern Papal provinces, he fixed his residence at Milan. He was adopted by Napoleon in January, 1806, and soon after married Augusta Amelia, daughter of the king of Bavaria. In 1809, when war broke out again between Austria and France, Eugene took the command of the French and Italian army on the frontiers towards Carinthia, but he was obliged to retire before the superior forces of the archduke John, and, after sustaining considerable loss from the Austrians at the battle of Sacile on the river Livenza, he withdrew to the banks of the Adige, where he received reinforcements. Upon the defeat of the great Austrian army in Germany, the archduke marched back for the protection of Vienna, and was closely followed by Eugene. A battle took place between the two armies near the river Piave, where the Austrians were worsted, and obliged to hasten their retreat. Eugene followed them through Carinthia and Styria, and on the 27th of May made his junction with Napoleon's grand army at Ebersdorf, near Vienna. He was thence sent into Hungary to check the rising *en masse* of the people of that country. On the 14th of June he defeated the archduke John at Raab in Hungary.

The battle of Wagram in July following put an end to the war. After the peace of Vienna, Eugene returned to Milan, from whence he repaired to Paris in December, 1809, to be present at the declaration of divorce between his mother and Napoleon. He made a speech to the senate, in which he dwelt on the duty of obedience to the will of the emperor, to whom he and his family were under great obligations. In 1812, he joined Napoleon in the campaign of Russia with part of the Italian army, during which service he took the command of the fourth corps of the grand army, and was engaged at the battles of Mohilow and of the Moskwa. In the disastrous retreat from Moscow, Eugene succeeded in keeping together the remnants of his own corps, and maintaining some order and discipline among them; and after Napoleon and Murat had left the army, he took the command of the whole. At Magdeburg he collected the relics of the various corps; and on the 2nd of May, at the battle of Lutzen, he commanded the left of the new army which Napoleon had raised. Soon after he returned to Milan to raise new conscriptions to replace the soldiers who had perished in Russia, and to make every effort to defend Italy against the threatened attack of Austria. Three levies of 15,000 conscripts each were ordered in the course of one year, in the kingdom of Italy alone: but the people were tired of war, and it was found difficult to collect the men. The news of the battle of Leipzig added to the general discontent; and at the end of October, 1813, the Austrian army entered the Venetian territory, when Eugene was obliged to retreat to the Piave, and, after some sharp fighting, to fall back on the Adige. In March, 1814, being attacked by the Austrians on one side, and by Murat at the head of the Neapolitan army on the other, he withdrew to the Mincio, and removed his family and property from Milan to the fortress of Mantua. On the 16th of April, Eugene and Marshal Bellegarde, the Austrian commander, signed the convention of Schiarino-Rizzino, by which hostilities were suspended, the French troops remaining in Italy were sent away, and Venice, Legnago, and other fortresses, were delivered up to Austria. Napoleon's kingdom of Italy was now at an end, and Napoleon himself had abdicated the crown of France. Some endeavours were made by Eugene's friends to obtain his nomination as king of Lombardy, but a strong party at Milan violently opposed it, and an insurrection took place in that city, in which Prina, one of Prince Eugene's ministers, was murdered by the people. Upon this, Eugene gave up Mantua to the Austrians, and returned with his family to Bavaria.

As viceroy of the kingdom of Italy, Eugene was personally liked by the people and by the army, for his frank bearing and affable temper, and his humane disposition. Entirely devoted to Napoleon, he implicitly obeyed and enforced his often harsh decrees, although he occasionally endeavoured to obtain some mitigation of them. He displayed activity and regularity in the details of administration; his viceregal court was splendid, but he was frugal in his own expenditure. Some of the persons by whom he was surrounded were objects of popular aversion, and thus occasioned an unfavourable feeling towards Eugene's government. He was also accused of having, in some fit of ill-humour during the great reverses of Napoleon's fortunes, used harsh and offensive expressions to the Italian officers around him, men who had devoted their lives to his and his stepfather's service, who had fought the battles of the French empire, and who were now deeply stung by his unmerited reproach. These things may have contributed to the revulsion of feeling that manifested itself at Milan in 1814.

After leaving Italy Eugene lived chiefly at Munich, at the court of his father-in-law, with the title of Prince of Leuchtenberg. He visited Paris after the death of his mother, and was very graciously received by Louis XVIII. He also visited Vienna when the Congress was sitting and was treated with marked attention by the Allied Sovereigns and their ministers, but especially by the Emperor Alexander. Eugene retained, with the consent of the Pope, the possession of some estates in the northern provinces of the Roman stat[illegible] which had formed part of the kingdom of Italy. The restored king of Naples also agreed to pay him five millions of francs. These grants were intended as a compensation for the loss of the yearly income of a million of francs assigned to him by Napoleon on the national domain of Italy. (Colletta, *Storia del Reame di Napoli*, vol. iv.) Eugene died at Munich on the 21st of February, 1824, at the age of 45 years. The Duchess of Braganza, Don Pedro's widow, and Prince Augustus of Portugal, late husband of the Queen Donna Maria, are his children. (*Storia d'Italia di* Carlo Botta; *Storia dell' Amministrazione del Regno d'Italia sotto il Dominio dei Francesi*; *Biographie des Contemporains.*)

BEAUJOLAIS, LE, a district in France under the old regime, and one of the subdivisions of the former province of Lyonnais: it is now included in the departments of Rhône and Loire. It was the most northerly of the subdivisions of the Lyonnais, and was bounded on the north by the duchy of Bourgogne or Burgundy; on the south by the districts of Lyonnais (understanding that name in its most restricted application) and Forez; on the east by the river Saône, which separated it from the principality of Dombes, one of the subordinate territories of Bourgogne; and on the west by the river Loire, which separated it from Forez. Beaujolais is about thirty-five miles from east to west, and about twenty-five from north to south, as measured on the map of *France in Provinces*, published by the Society for the Diffusion of Useful Knowledge; but a reference to the great survey of France by Maraldi and Cassini, in 183 sheets, shows the boundary on the south to be so very irregular that no measurement would give much clue to the size of the district. The dimensions generally assigned by the French geographers are ten leagues (or twenty-eight miles) in length, and eight leagues (or twenty-two miles) in breadth. This country is traversed from south to north by the range of hills which extend from the Cévennes northward to the Côte d'Or, and separate the basins of the Loire and the Rhône. From this range a more level country extends on one side to the Loire and on the other to the Saône, watered by small streams which descend from the mountains and fall into the rivers above-mentioned. Of these streams the chief are the Azergue (which, when its torrent is swollen, is very rapid), and the Ardière, tributaries of the Saône; the Rhin or Reins, and the Trambouzan, which flow into the Loire, and the Trambouze, an affluent of the Rhin.

The district is very fertile, and some of the heights are covered with fine wood, yielding deals and timber for the carpenter and the shipwright. The agricultural produce consists of corn, wine, and hemp: there is abundance of pasturage for cattle. Considerable mining operations were once carried on in Beaujolais; but these seem to have been neglected for a long time, at least such as yielded silver. The stone quarries of Pommiers, near Villefranche, which for twelve centuries supplied Lyon with immense blocks of stone of excellent quality, are now almost, if not quite abandoned.

The chief towns in Beaujolais are Villefranche near the Saône (population, in 1832, 6460), which was the capital of the district while it existed as a subdivision of Lyonnais; Beaujeu (in the interior, upon the river Ardière), from which the territory obtained its name (population, in 1832, of commune, 1596; of town, 1520); Belleville, at the junction of the Ardière with the Saône; St. Symphorien de Lay, on the road from Lyon to Roanne (population of commune, in 1832, 4500); Thizy, near the Trambouze; Perreux, near the Loire; and Amplepuis, on the Rhin (population of commune, in 1832, 4873. [See LOIRE, DEPARTMENT OF; LYONNAIS; RHÔNE, DEPARTMENT OF; and VILLEFRANCHE.]

Beaujeu is seated at the foot of a mountain, and, as already noticed, on the bank of the river Ardière. The lords of Beaujeu had a castle here; but when the lordship came by inheritance to the house of Forez, the nobles of that race patronized Villefranche, and Beaujeu gradually falling into decay gave place to its younger rival. Expilly, in his *Dictionnaire des Gaules, &c.*, Paris, 1762, assigns to it 3000 inhabitants. Its diminished population in 1832, given above, shows its further decay. It had, up to the first French Revolution, a collegiate church, a convent, and an hospital. The church was worthy of note for the sculptures and paintings which it contained. Beaujeu is in 46° 10′ N. lat., and in 4° 34′ E. long.

The first lord of Beaujeu was Wischard or Guichard, who lived in the reign of Robert, son of Hugues Capet (A.D. 996-1031), and the lordship continued to be held by his descendants in the male line till 1265, when, in failure of a male heir, it passed by marriage into the family of the Counts of Forez, a younger branch of which family became lords of Beaujeu. Several of these nobles distinguished themselves in the wars of the middle ages. Humbert IV., of the first race, took an active part in the war against the Counts of Toulouse, the protectors of the persecuted Albigeois; was made constable of France by Louis IX. (St. Louis), whom he accompanied to the Holy Land; and is said to have died in that expedition. Guichard VI., of the second or Forez race, served in the wars of Philip VI. (of Valois), King of France, against the Flemings, and his son Edward in those of the same Philip, and of John II., son and successor of Philip, against Edward III. of England. Edward of Beaujeu, who was in the battle of Crecy, fell in an encounter, in which he defeated the English at Ardres in 1351. Another Edward, one of the successors of this lord, having thrown out of a window an officer who served him with a citation to answer a charge of rape, was arrested and led prisoner to Paris; and only obtained his liberty by purchasing, at the price of his lordships of Beaujolais and Dombes, the protection of Louis Duke of Bourbon, into whose family the territory of Beaujolais consequently came.

The failure of the direct line of the Dukes of Bourbon caused a disputed succession. The claimants were Charles de Bourbon, constable of France, and Louisa of Savoy, mother of Francis I., King of France, whose claims were derived by purchase from a daughter of that Lord Edward who fell in the war with the English. Louisa, unhappily for France, gained the suit; the constable revolted, and in the service of the Emperor Charles V., and in conjunction with his generals, defeated Francis at Pavia and took him prisoner. The house of Bourbon Montpensier gained possession of the lordship of Beaujolais in the reign of Charles IX. of France, and from this house it passed to the family of Orleans, which appears to have held it up to the period of the French Revolution.

BEAULIEU, the name of many places in France. In the *Dictionnaire Universel de la France* (Paris, 1804), thirty-nine towns and villages so called are given. Two of the villages are, however, beyond the boundaries to which France was reduced at the downfall of Napoleon; but as three small villages, also called Beaulieu, appear in the *Dictionnaire des Gaules* of Expilly, which are not inserted in our first-quoted authority, we may consider the name as applying to forty places, large and small. It was also given to several religious houses, whether in towns or in more secluded situations.

Beaulieu, in the department of Corrèze, is a small town, which owes its origin to an antient Benedictine monastery of the congregation of St. Maur, founded by Rodolph, or Raoul de Turenne, Archbishop of Bourges, about the middle of the ninth century, and enriched by Frotaire, successor of Raoul, and others. It is on the right bank of the Dordogne, in the southern part of the department, in 44′ 59′ N. lat., and 1° 48′ E. long: population, in 1832, 2154 for the town, and 2415 for the whole commune. Some have ascribed the foundation of the monastery to Charlemagne, but erroneously. (Martinière; Expuly, *Dictionnaire Universel de la France, &c.*)

Beaulieu, in the department of Indre et Loire, may be considered almost as a suburb of the town of Loches (see LOCHES), from which it is separated by the two channels of the river Indre, which divides a little above this part, and reuniting its waters just below, encloses a small island which lies between the two towns. Beaulieu, previous to the Revolution, consisted of three parishes, which seems to indicate that it was once of greater importance. There were also two religious foundations—a Benedictine abbey of the congregation of St. Maur, and a house of regular canonesses of the order of St. Augustin. The former of these was founded in the beginning of the eleventh century by Fulk Nerra, Count of Anjou and Lord of Loches; the latter was of much later origin, having been founded in 1643. The chief manufactures of the town are woollen cloth and leather: the tanneries are on the river Indre. The population, in 1832, was 1800 for the town, or 2222 for the whole commune. The celebrated Agnes Sorel, mistress of Charles VII., king of France, was lady of this town of Beaulieu. It is in 47° 7′ N. lat., and 1° 0′ E. long.

At the village of *Beaulieu*, near the town of St. Germain Lembron, in the southern part of the department of Puy-de-Dôme, are some alkaline waters, the source of which is intermittent, though the times of flowing and of cessation have not been accurately marked.

BEAUMARCHAIS, PIERRE AUGUSTE CARON DE, was born at Paris in January, 1732. His father was a watchmaker, and brought up his son to the same profession, in which young Beaumarchais showed considerable skill. He was also remarkably fond of music, and attained great proficiency in playing on the harp and the guitar. Beaumarchais played before the daughters of Louis XV., who being pleased with his musical skill admitted him to their concerts, and afterwards to their parties. He now appeared at Versailles in a rich court-dress, which offended a haughty nobleman, who meeting him one day in one of the galleries, asked him abruptly to look at a valuable watch that he wore, which was out of order. Beaumarchais excused himself, by saying that his hand was very unsteady; the other insisting, Beaumarchais took the watch and dropped it on the floor, simply observing: 'I told you so.' Notwithstanding this event he continued to enjoy the patronage of the Court, which gave him the opportunity of becoming connected with some of the Fermiers Généraux and great contractors. It was his bad fortune to be involved in several law-suits, some of which made great noise in the world, and gained considerable notoriety in consequence of the memoirs or pleadings of his case, which Beaumarchais wrote and published. These pleadings, which show considerable skill and oratorical power, are inserted in the collection of his works. But his fame as a writer rests on his plays, and chiefly on the two, 'Le Barbier de Seville,' and 'Le Mariage de Figaro,' which are too well known all over Europe, both as plays and as operas, to require any particular notice here. The character of Figaro was a happy invention, and the other principal characters, in both plays, are drawn with great skill. The 'Mariage de Figaro' alone produced to Beaumarchais 80,000 francs. He wrote a third play, 'La Mère Coupable,' which may be considered as a sequel to the other two, but is inferior to them in many respects, and objectionable in a moral point of view. He also wrote 'Eugenie' and 'Les Deux Amis:' the subject of the first is taken from an adventure which occurred to his own sister, and which he relates in his memoirs. Goethe has treated the same subject in his drama of 'Clavigo.' At the beginning of the revolt of the English-American provinces, Beaumarchais entered into a speculation for supplying the colonies with arms, ammunition, &c.; he lost several vessels, three of which were taken in one day by the English cruisers in coming out of the river of Bordeaux; but the greater number arrived in America, and Beaumarchais enriched himself by his undertaking. Among other speculations he engaged to supply Paris with water and with fire-engines. When the French revolution broke out, Beaumarchais showed himself favourable to the popular cause, and entered into speculations to supply corn, muskets, &c. But his activity in that critical period exposed him to suspicion; he was accused and acquitted, then accused again, and being obliged to run away, he escaped to England and afterwards to Germany. He returned to France after the fall of Robespierre, and then entered into a new speculation in salt, by which he lost a large sum. He died in May, 1799.

Beaumarchais had considerable talent and other good qualities, but he was very vain and fond of distinction. He undertook an edition of all the works of Voltaire, of whom he was a great admirer; but the edition, notwithstanding all his pains and great expense, proved very indifferent, both as to correctness and execution. His correspondence, which is at the end of his works, contains some well-written letters, among others one to Citizen Baudin, of the French Legislative Council, in which he inveighs against the iniquitous system adopted by the Directory of transporting to Guiana those who were obnoxious to them, after the affair of the 18 Fructidor, 1797. (*Œuvres complétes de* Beaumarchais, 1 vol. 8vo. Paris, 1809; *Dictionnaire Universel Historique.*)

BEAUMARIS, a parish and borough, and the county-town of the county of Anglesey, North Wales, in the hundred of Dindaethwy. It is situated on the picturesque bay of Beaumaris, at the northern entrance of the Menai strait, at the distance of 4½ miles from the Menai bridge, 3½ miles from Bangor, and 216 miles N.W. from London. The original name of the site was Bonover, which w[illegible] changed by Edward I., who may be regarded as the foun[illegible] of the town, to Beaumaris, which, according to some authorities, is a French compound (*beau* and *marais*, a fine or beautiful marsh), descriptive of the situation of the place; but others very improbably derive it from *Bi-maris*, in allusion to its situation at a place where two tides or seas meet. The former explanation seems to agree best with the existing name. The castle of Beaumaris is considered to have been the parent of the town. After Edward I. had secured his conquests in Caernarvonshire, by the erection of the castles of Caernarvon and Conway, he built Beaumaris castle in 1295; a low marshy spot was selected for the site, for the purpose of having a large fosse around the castle filled with water from the sea. A canal also was cut to enable small vessels to discharge their lading under the walls, for the use of the garrison. Each of Edward's three castles differs in form. The present, from the lowness of its site and dilapidated state of the walls, presents a far less imposing appearance than the others. It consists of an outer ballium or envelope, flanked with ten circular bastion towers, of which those at the angles are the largest, and having on the south side an advanced work, called the Gunner's Walk. About the centre of this fortified enclosure stands the principal body of the castle. Its height far exceeds that of the envelope, and at a distance appears to rise majestically from it, as from a base. It is nearly quadrangular, with a grand round tower at each angle, and another in the centre of each face. The interior consists of an area 190 feet square, with obtuse corners. The centre of the north-west side contains a great hall, 70 feet long and 23½ broad, with a proportionate height: it has five large pointed windows, which form a handsome front to the inner quadrangle. On the eastern side of the area there are remains of a chapel, the sides of which are ornamented with receding pointed arches. The elegantly-groined roof is supported by ribs springing from pilasters, between each of which is a long narrow window. There was a communication between the several parts of the inner court by means of a narrow surrounding gallery, a considerable portion of which is still entire. Within recesses formed in the thickness of the wall, in the sides of this gallery, are several square apertures, apparently once furnished with trap doors, which opened into rooms beneath; but as there are no vestiges of descending steps, it is difficult to ascertain their use. It is conjectured that these rooms, as well as the two circular eastern towers, were employed for the confinement of prisoners. The principal entrance to the castle faces the sea, and is formed by two circular bastion towers, between which a pointed archway was fortified with four portcullises. The ruins of this castle are plentifully bespread with gilliflowers, which grow nowhere else in the island of Anglesey.

The governor of the castle was generally also captain of the town, and usually had twenty-four men under him. There is nothing remarkable in the early history of the castle, except the frequent quarrels between the garrison and the inhabitants of the vicinity, whose complaints ultimately occasioned its removal in the reign of Henry VII. In the year 1642 the castle was garrisoned for Charles I., for whom it was held by Colonel Bulkeley, the son of Lord Bulkeley the constable, until 1648, when it capitulated on honourable terms to General Mytton. The estimated annual expense of the garrison in 1653 amounted to 1703*l.*

The castle is still the property of the crown. A handsome tennis-court, fives-court, and bowling-green have been formed within its walls for the amusement of residents at Beaumaris.

When Edward I. built the town, he surrounded it with walls, made it a corporation, and gave it great privileges, and some valuable lands. Among the privileges the following are mentioned:—That the inhabitants should have a 'free prison' in the castle; that no Jews should dwell in the town; that if any of the burgesses died, testate or intestate, their goods should not be forfeited to the king, but should be enjoyed by their heirs. The town did not, however, send any member to parliament until the reign of Edward VI. By the Reform Bill, the towns of Llangefni, Amlwch, and Holyhead, with Beaumaris, now send a member. The bill made no alteration in the boundary of the borough, which embraced a district of about ten miles in circuit, and was therefore considered sufficiently extensive.

Beaumaris seems to have flourished under the royal favour, and to have attained some commercial importance; for Sir John W[illegible]ne, in characterising the inhabitants of the three castellated towns of the Menai, upwards of two centuries ago, speaks of 'the lawyers of Caernarvon, the *merchants* of Beaumaris, and the gentlemen of Conway.' An inference to the same effect has been made from the local tokens which were, at a somewhat later time, in use among the opulent tradesmen as a substitute for copper coin; a practice at that time common in places of considerable traffic. 'At present,' says the *Boundary Report*, 'it has not any trade or manufactures, but it derives a considerable profit from being the resort of visiters for sea-bathing, many of whom come from Liverpool.' The bay before the town affords good anchorage for ships, having seven fathoms water at the lowest ebb. Vessels often find security there in hard gales, and occasionally undergo repairs upon the beach. A few sloops belong to Beaumaris, but they are chiefly employed in carrying for other ports.

The town of Beaumaris consists of several streets, of which one, terminated by the castle, is well built, and the houses are in general neat. The chapel, dedicated to the Blessed Virgin, had formerly one aisle distinguished as the chapel of St. Mary, and the other as that of St. Nicholas: it is now known exclusively by the former name. It is a spacious and rather elegant structure, consisting of a chancel, nave, and two aisles, with a square embattled tower. It was formerly a chapelry in the parish of Llandegfan, but is now a distinct parish church. The town-hall is a commodious modern structure; the basement story contains a prison. Above, besides the apartments for the transaction of municipal business, is a handsome apartment, which forms the finest ball-room in the principality. There is also a county-hall, a county prison, and a custom-house, which is the comptrolling-office not only to the different parts of the island, but to those on the Caernarvon side of the Menai. Near the town is a ferry, which belonged to the crown until the reign of Elizabeth, who granted it to the corporation. The other five ferries of the Menai had previously been transferred to private hands by Henry VIII. The last Lord Bulkeley, who did much for the improvement of Beaumaris, made a fine road at his sole expense, from the town, along the banks of the Menai, to the Menai bridge, a distance of 4¾ miles.

In the year 1603 a free school was founded and liberally endowed at Beaumaris by David Hughes, Esq., a native of the town. Among the other establishments for education is an extensive school, the pupils of which pay one penny a-week. There are almshouses for ten poor persons, six of whom are indebted for their provision to the founder of the free school; the other four were added by the last Lord Bulkeley.

The town, as re-incorporated in the fourth year of Queen Elizabeth, is governed by a mayor, two bailiffs, chosen annually, and chief burgesses, forming altogether a governing body limited to twenty-four persons. These twenty-four capital burgesses were the only electors of the parliamentary representative previously to the Reform Bill. The market-days are Wednesday and Saturday. The fairs are on February 13, Holy Thursday, September 19, and December 19, for cattle. The population of the borough, in 1831, amounted to 2675, of whom 1444 were females, according to the Population Abstract; but the recent report on Municipal Corporations estimates the population at only 2497.

(Pennant's *Tour in Wales*; Grose's *Antiquities of England and Wales*, vol. iv.; *Beauties of England and Wales*, vol. xvii.; *Boundary Reports*, part vii.; *Report on Municipal Corporations*, &c.)

BEAUMONT, the name of above sixty towns and villages in France, as we find by a comparison of the *Dictionnaire des Gaules, &c.*, of Expilly (Paris, 1762), with the *Dictionnaire Universel de la France* (Paris, 1804), of which only the following are of sufficient importance to require notice.

Beaumont-de-Lomagne (so called, as being in Lomagne, a district of the antient Armagune), a town in the department of Tarn et Garonne, on the road between Montauban and Auch. It is on the left bank of the little river Gimone, an affluent of the Garonne. Coarse woollen cloths, hats, and leather, are the chief manufactures of this little town, which, in 1832, had a population of 3126 for the town, and 4130 for the whole commune. It is in 43° 53′ N. lat., and 1° 0′ E. long.

Beaumont sur Oise, in the department of Seine et Oise, is about 19 miles north of Paris, on the road to Beauvais, Abbeville, Boulogne, and Calais. It is on the left or south bank of the river Oise, over which there is a very handsome bridge; and on the summit of the hill, on the slope of which the town is built, there are the remains of an antient castle. Some braid (*passementerie*) is made here, and some trade is carried on in corn, flour, and glass. The population in 1832 was 1892.

Beaumont had a collegiate church up to the period of the Revolution. This town was pillaged by the Burgundians in the year 1416, while Charles Duke of Orleans, to whom it then belonged, was a captive in England. It is in 49° 8′ N. lat., and 2° 16′ E. long.

Beaumont-le-Roger, in the department of the Eure, is situated on the right bank of the river Rille, which falls into the Seine near its mouth. The town was built, at least augmented, by Roger, one of the lords of the territory in which it is situated. Louis IX. (otherwise St. Louis) King of France, obtained it of its former lords, and united it to the domains of the crown; but a century afterwards it was alienated by John II. to Louis, brother of Charles of Evreux, King of Navarre. It returned, however, into the possession of the French kings, having been ceded by Charles III., King of Navarre, who had inherited it, to Charles VI. of France.

There is a large village called Vieille, on the opposite bank of the river, which may be considered as a suburb of the town, with which it is connected by a stone bridge. Beaumont had, before the revolution, a Benedictine priory, dependent upon the abbey of Bec, as well as a parish church dedicated to St. Nicholas. Formerly the townsmen manufactured woollen and linen cloths, and nails, and a considerable quantity of linen was bleached in the village of Vieille. (*Le Grand Dictionnaire de* Martinière, 1730.) At present there is a large woollen-cloth manufactory employing 400 workmen; also a glass-work, which employs 100. This last manufactures annually 400,000 bottles, which are chiefly destined to Bretagne. Population, as given in the *Dictionnaire Universel de la France* (Paris, 1804), 1325. We have no later authority.

There was formerly a strong castle here, built upon a precipitous rock. West of the town is a considerable wood, above seven miles long, from N.N.W. to S.S.E. and two and a half miles wide, which takes from it the name of the Forest of Beaumont. (*Dictionnaire Universel de la France*, Paris, 1804.) Beaumont-le-Roger is in 49° 4′ N. lat., and 0° 46′ E. long.

Beaumont-sur-Sarthe, otherwise *Beaumont-le-Vicomte*, is a town in the former province of Maine, and the present department of Sarthe. It lies on the right (which, from the sinuous course of the river, is here the north) bank of the Sarthe; and on the road from Alençon to Tours: 12 miles S. of Alençon, and 127 miles W.S.W. of Paris; 48° 13′ N. lat., and 0° 6′ E. long.

This town takes its distinctive adjunct of *Le-Vicomte*, because built by the former viscounts of Mans. It was considered a place of considerable strength; and was several times taken and retaken in the wars which William the Conqueror, as Duke of Normandy, carried on with the counts of Maine. Henry IV. of France, during the lifetime of his father, and after the death of his elder brother, took from this town the title of Duc de Beaumont.

There are not any remains of the fortifications now. The manufactures of the town consist of linen cloth and serge. The population, in 1832, was 1918 for the town, and 2381 for the whole commune.

BEAUMONT, a commune of Hainault, bounded on the north by that of Thirimont; on the north-east by Streé; on the east by Brabançon and Clermont (the latter in the province of Namur); on the south-east by Solre Saint Gery; and on the west by the commune of Leval-Chaudeville.

The district is watered by the little river Beaumont, known also under the name of Hantes, which falls into the Sambre. In its course through Beaumont it gives motion to several mills, iron works, and establishments for sawing marble.

The town of Beaumont, which is situated on the high road from Mons to Chimay, is built on the summit of a pretty high hill, at the foot of which masses of rock are heaped together. This town is remarkable for the beauty of its site, which commands extensive views over a diversified country. A cattle market is held here on the 17th of every month, and four fairs during the year, at Easter, June, September, and November; there are, besides, two markets weekly.

Beaumont, formerly called *Bellomontium*, was, in the 11th century, the capital of a considerable lordship. The town was strongly fortified in the middle of the 16th century. It suffered much in the wars with France, and its castle was burnt by the French general, Count de Grand Pré, in 1660. The Spaniards ceded the place to the French in 1684; but by the treaty of Utrecht, it came into possession of the House of Austria. The English having taken the town in 1691, blew up the fortifications, of which nothing now remains but some towers and subterraneous passages, which show the former strength of the place.

To the north, west, and south of the town, is a group of steep hills, the sides of which would be inaccessible but by means of zigzag roads. Nearly the whole surface of the commune is broken by limestone and schistose rocks. The land fit for cultivation is of various qualities; the most productive consists of a mellow clay on a substratum of calcareous rock; in other places the soil is composed of decomposed schistus on a substratum of the same in an undecomposed state. The productions are wheat, rye, meslin, barley, oats, vetches, beans, potatoes, and various garden vegetables. Soils of the best quality are cropped without intermission during three, four, or five years, but other lands lie fallow every third year.

A limestone quarry, in which building stone is worked, gives employment to many of the inhabitants; others are employed in sawing blocks of marble brought from Barbançon and Cerfontaine, in Namur. Serges, and other woollens of coarse texture, are woven; and blond lace also is manufactured in Beaumont. The population in 1831 was 1868. (Meisser's *Dictionnaire Géographique de la Province de Hainault*, 1833.)

BEAUMONT, FRANCIS, the dramatist, third son of Francis, one of the judges of the Court of Common Pleas, and of Anne, daughter of George Pierrepoint, of Holme-Pierrepoint, in the county of Nottingham, was born at the family seat at Grace Dieu, in Leicestershire, 1586. The Beaumonts were not only an antient stock, probably of Norman origin, to judge from their name, but claimed to be descended of the kings of France, a claim which antiquaries have disputed. By an easy process, a like claim was made to connexion with the blood royal of England. Neither of the pretences, perhaps, had better foundation than in the lilies and lion rampart which they bore in their coat of arms: but whether just or not, the glory of the family consists in its literature; and the point, except as a matter of antique colouring, would not be worth mention, but that everything becomes interesting in connexion with a great name. We should look with curiosity upon the family seal of Beaumont, if we had it in our hands, just as we do upon the *speare* in the arms of *Shakspeare*. Our author's shield is the same as that which is borne by the family at present, and may be seen in any *Baronetage*.

At ten years of age (for people went earlier to the university in those days) Beaumont was admitted a gentleman-commoner at Broadgate's Hall, now Pembroke College, Oxford. He afterwards became a student in the Temple; married Ursula, daughter and co-heir of Henry Isley, of Sundridge, in Kent, by whom he had two daughters; died before he was thirty, in the spring of the year 1615; and was buried at the entrance of St. Benedict's Chapel, in Westminster Abbey, without any inscription. One of the daughters of Beaumont, Frances, was living at a great age in the year 1700, at which time she enjoyed an annuity of £100 from the Duke of Ormond, in whose family she had resided (say the biographers) as a "domestic;" by which is meant, perhaps, a companion: though, from the greater dispersion of the younger branches of families in those days, and their inability to pin themselves on public offices and pensions, we hear of them oftener in trades, and other humble situations, than we do now. This lady is said to have had in her possession several poems of her father's writing, which were lost during a voyage she made from Ireland.

The race of the Beaumonts, like that of the Fletchers, which is an interesting coincidence, appears to have abounded in the love of poetry. The biographers have noticed that there were four Francis Beaumonts all living in 1615, and that at least three of them were poets—Francis the dramatist; Francis, his cousin, master of the Charter House; and Francis a 'Jesuit;' the same, we presume, as Francis, one of the sons of his elder brother Sir John, probably too young to be a Jesuit at that time, but who became one after his father's death. This Sir John Beaumont, author of *Bosworth Field*, was a poet of real merit, as the reader may see by the collection of his verses in Chalmers's *English Poets*. His son and successor, another John, inherited his poetical tendency. Dr. Joseph Beaumont, master of Peter House, Cambridge, who lived in the time of the Charleses, and was of a branch of the family, though son of a woolstapler in Suffolk, is also known to poetical antiquaries as one of the writers from whom Pope thought a man might 'steal wisely.' He is furthermore commended for his Latin style, and for his taste in painting. Some pictures of his, we believe, are still extant in Peterhouse Chapel. The grandmother of the witty Villiers, Duke of Buckingham, was a Beaumont, of the same antient stock; the late Sir John Beaumont, the representative of the race, and the friend of poets and artists, was himself an artist; and as if all the blood connected with our dramatist was destined to be sprightly, the famous Lady Wortley Montague was a Pierrepoint, of the same race as Anne Pierrepoint, Beaumont's mother.

As Beaumont's life was so short, and his writings apparently so numerous, it is naturally supposed that he paid little attention to the law; a conclusion which might be drawn from his poetical genius. He probably gave himself up to the literature and amusements of the town. He records, in a celebrated epistle, his intimacy with Ben Jonson, and the other men of genius who assembled at the Mermaid Tavern; where, he says, they used to leave an air behind them, sufficient to make the two next companies witty.

'Methinks the little wit I had is lost,
Since I saw you: for wit is like a rest
Held up at tennis, which men do the best
With the best gamesters. What things have we seen
Done at the Mermaid! heard words that have been
So nimble, and so full of subtile flame,
As if that every one from whence they came
Had meant to put his whole wit in a jest,
And had resolved to live a fool the rest
Of his dull life; then where there had been thrown
Wit able enough to justify the town
For three days past,—wit that might warrant be
For the whole city to talk foolishly,
Till that were cancell'd; and when that was gone,
We left an air behind us which alone
Was able to make the two next companies
Right witty;—though but downright fools, mere wise.'

At this greatest of all literary clubs, he would meet with Shakspeare; and perhaps it was here he became acquainted with the illustrious friend with whom he was destined to become all but identified. The date of their first play is 1607, when our author was one-and-twenty. Fletcher was ten years older. According to Aubrey, the Boswell of those days, their connexion was, in every respect, singularly close. He says they not only lived in the same house, which was near the theatre, on the Surrey side of the river, but had their clothes, cloak, &c., between them, with other things in common, for which the curious reader must consult the original, which gave rise to a ludicrous instance of pious fraud on the part of Mr. Chalmers, when, with the alteration of a single, but important letter, he transferred the account to his *General Dictionary*, and his edition of the *English Poets*. Aubrey was credulous, and perhaps only repeated scandal which others laughed at; and as to the clothes and cloak, the two friends might have been seen to use them accidentally, upon some one or two occasions, which would have been quite enough for rumour to convert into a practice. Not but that a community of property in such a respect, between two such men, would be very possible, and an evidence of affection. The friendships of that age were of a more romantic cast than at present. Its poetry fell with more vigour into the prose of common life, and tinctured the whole stream.

A natural curiosity has existed, to know what were the distinguishing characteristics of the portions furnished to their common writings by these illustrious friends. It has generally been believed that Fletcher contributed the vivacity, and Beaumont the judgment. We can discover no foundation for this opinion, except the report; and suspect that there never was any. 'I have heard,' says Aubrey, 'Dr.

John Earle (since Bishop of Sarum) say, who knew them, that his (Beaumont's) maine business was to correct the overflowings of Mr. Fletcher's witt.' Yet Earle, in his verses upon Beaumont, expressly attributes to him whole plays, in which his genius is quite as exuberant as Fletcher's. Their editors in general are divided as to the property; tradition seems to have distributed it between them at random; and Mr. Seward, in an elaborate attempt to discriminate it, bewilders himself in refinements which end in giving them each other's qualities interchangeably, and protesting against his own distinction. If the miscellaneous poems attributed to Beaumont be his, especially the *Hermaphrodite*, (which Cleaveland claimed as a joint composition of himself and Randolph), there would be reason to suspect that his genius was naturally more exuberant than Fletcher's: and judging from the works which they are known to have produced separately, such as the *Faithful Shepherdess*, the *Masque*, and the *Epistle* just quoted, it appears to us that there is nothing to show for concluding that each might not have written either; except, indeed, that in the only undramatic copy of verses extant in Fletcher's name (*Upon an Honest Man's Fortune*), his muse is the graver of the two. The *Masque* is shorter than the *Pastoral;* but contains evidences of precisely the same moral and poetical tendencies, such as we shall speak of presently, when we characterize their common genius. Perhaps Beaumont, upon the whole, was the less lively of the two in company; and hence a fallacious conclusion might have been drawn, that he was the more critically judicious. The verses we have quoted do not look like it; and Shirley has left a testimony which argues for an equal division of property, even in talk. 'Gentlemen that remembered them,' he says, 'declare, that on every occasion they talked a comedy.' We are therefore inclined to think, that the reason which Aubrey gave for their strong personal attachment, applies with equal force to this question, and settles it in favour of our conclusion. 'There was a wonderful consimility of phansy,' he says, 'between him (Beaumont) and Mr. John Fletcher, which caused the dearenesse of friendship between them.' The 'wonderful consimility of phansy' was seen in their friendship, and in their plays. They loved one another fully and entirely, and exhibited the only great spectacle existing of two men writing in common, and puzzling posterity to know which was which, precisely because their faculties were identical. The case may be thought unlikely; in other words, the coincidence is unique; but who will deny that such chances of coincidence must exist? In this instance the two men actually happened to meet; and here, we think, ends the whole mystery.

Mr. Lamb, in his *Dramatic Specimens*, has assumed that Fletcher is the author of many plays which have been attributed to both writers; and he has criticised him by himself accordingly; we know not on what ground; probably from taking the authority of some edition for granted, for he is not likely to have read all the plays through, as Seward did, for the purpose of assigning the respective property; though nobody could have brought the question to a likelier conclusion, had he done so.

Another, and apparently more perplexing mystery remains, in the wonderful praises lavished by the writers of those times upon the decency and chastity of a muse, which to our eyes appears the strangest mixture of delicate sentiment and absolute prostitution. Beaumont and Fletcher are the dramatists of all others whom a liberal modern reader could the best endure to see in a castigated edition. Their ideas are sometimes even as loathsome as they are licentious. Schlegel has expressed his astonishment, how two poets and gentlemen could utter the things they do, nay, whole scenes; in some measure, whole plays; and Dryden, who availed himself in his dramas of all the license of the time of Charles II., said, in defending himself on that point, that one play of Beaumont and Fletcher's (the *Custom of the Country*) contained more indecency than all his put together. Yet these are the writers whom their contemporaries, including divines as well as fine gentlemen, compliment in the most emphatic manner upon their decorum and purity. Harris, then or subsequently Greek professor at Oxford, and called a 'second Chrysostom,' panegyrizes their muse for being 'chaste.' Dr. Maine, celebrated for his piety as well as wit, speaks of their 'chaste scene,' which

> 'Taught loves so noble, so reform'd, so clean,
> That they who brought foul fires, and thither came
> To bargain, went thence with a holy flame,'

Sir John Birkenhead says that Fletcher (who was son of a bishop) wrote

> 'As if his father's crosier awed the stage;'

and Dr. Earle (afterwards a bishop himself), not content with declaring that Beaumont's wit is 'untainted with obscenity,' protests that his writings are too 'pure,' and 'chaste,' and 'sainted,' to be called plays.

The solution of this mystery gives us an extraordinary idea of such plays of the time as have not come down to posterity, and of the distinction drawn by our ancestors between license of speech and conduct; for the panegyric appears to be almost wholly founded upon the comparative innocence of double meanings.

> 'Here, ye foul speakers, that pronounce the air
> Of stews and sewers,'

cries the gallant Lovelace, the Sir Philip Sydney of his day, speaking of the very comedy above-mentioned,—

> 'View here a loose thought said with such a grace,
> Minerva might have spoke in Venus' face;
> So well disguis'd, that 'twas conceived by none,
> But Cupid had Diana's linen on;'

and so he goes on, *objecting nothing to the thought, but* holding the example to be spotless, and desiring it to spread, as if for its own sake. It thus appears, that other writers used language,—homely words, or grosser images,—such as Beaumont and Fletcher never uttered; and if it were objected that Shakspeare, as well as several other dramatists, did not allow themselves a twentieth part of the license even of Beaumont and Fletcher, the reply would be, that the accomplished duumviri more expressly set themselves to represent the manners and conversation of high life and the town elegance, and that their ingenuity in avoiding cause of offence was therefore the more singular and meritorious. In truth, the language permitted in the circles of those days was very gross, and the license of behaviour corresponding. It is a great fallacy to suppose that loose manners among the English gentry originated with the court of Charles II. That of James I. was extremely licentious; and the consequences of it were only suppressed, and that chiefly in appearance, by the greater personal decorum of his son, and the powerful discountenance of the Puritans. It was nothing but the old stream that burst forth in the reign of Charles II., taking advantage of the weak points and fallen influence of the Puritans, to contrast its candour with their alleged hypocrisy, and pretend that impudence itself was a virtue.

Beaumont and Fletcher were two open-hearted men and genuine poets, spoilt by town breeding and the love of applause. It is a pity that two such poets could have been so spoilt; but still, in the best part of their genius, they survived the contamination, strong in their sympathy with the great nature that bestowed it, and 'pure in the last recesses of the mind.' Their muse is like some fair creature of exuberant temperament but invincibly good heart, who has retained the fineness of her disposition in spite of her bad habits and of the very superiority of her animal spirits to remorse, and who, in the midst of a vicious life, has still a belief in innocence and virtue. Even the purest characters in their plays are not free from an intermixture of things which they ought not to know or talk about; while the practical chastity is overwrought, and put to absurd and gratuitous trials, as if there could be no faith in it but from the most extravagant proof. In short, a something not entirely true to nature pervades almost all their writings, running side by side with the freshest and loveliest passages; and while one half of a scene, or sometimes of a speech, or even a couple of sentences, gushes out from the authors' heart, the other is brought from some fantastic fountain of court manners and talk, and produced for the sake of town effect. In this, we conceive, lies the whole secret of the inferiority of Beaumont and Fletcher to Shakspeare, and in some respects to Webster and others. To be sure, they may have wanted, by nature, a certain robustness of moral constitution like his, not unconnected perhaps with physical; but unlike any other great dramatists of their time, they were born and bred 'fine gentlemen,' educated in all the conventionalities and artificial manners of their time; and the applause that they gained from the world of fashion had too great an effect upon them, and divided their inspiration with nature.

A selection from the works of Beaumont and Fletcher would make as exquisite a volume, or two volumes, of refined sentiment, lofty and sweet poetry, excellent sense, humour and pathos, as any in the language, excepting Shakspeare and Chaucer. Nothing can surpass the tender delicacy of the page's scenes in 'Philaster,' the dignified sentiment in the 'Elder Brother,' the wit and happy extravagance in the 'Woman Hater' and the 'Little French Lawyer,' the pastoral luxuriance in the 'Faithful Shepherdess,' or the exquisite and virgin poetry scattered throughout the whole collection, sometimes in the midst of the most artificial and even disgusting passages.

In lyrics they have no equal, not Shakspeare himself, nor Milton. A miniature volume of the truest lyrical poetry might be collected out of their dramas,—of compositions which sing their own music. (*Dramatic Works of Beaumont and Fletcher*, 1778; *Biographia Britannica;* Chalmers's *British Poets;* Aubrey's *Letters and Lives of Eminent Men*, &c. &c.; and Lamb's *Specimens of English Dramatic Poets*, which contains some masterly criticism on those writers).

BEAUNE, a town of considerable size, and the capital of a sub-prefecture, or arrondissement, in the department of Côte d'Or, in France. It lies nearly under the S.E. slope of the ridge of Côte d'Or, and upon the little stream the Bouzoise[*], which rises just above the town, and uniting with the Meuzin, flows into the Saône. It is 23 miles S.S.W. of Dijon, and 206 miles S.E. of Paris; in 47° 2′ N. lat., and 4° 50′ E. long.

Beaune is situated in a fertile and agreeable country, celebrated for the wines which it produces. Both the red and white *Beaunois* wines are considered among the best in this part of France. They include the growth of Meursault, Mont Rachet, Pomard, and Volnay. The town itself, considered apart from its suburbs, is of an oval form, surrounded with an old wall ruined in many places, but the ramparts afford to the townsmen a good promenade. Our old authorities speak of four gates, those of St. Nicholas, St. Martin, La Bretonniere, and La Madeleine. Millin (*Voyage dans les Dép. du Midi de la France*, Paris, 1807) speaks of the 'new gate,' which, he says, is of tolerably good architecture. This is either a new entrance, or a re-erection of the gate of St. Nicholas.

The town is well built, with streets which are described by M. Millin as spacious. Before the revolution (we know not what change has taken place since), the town and suburbs consisted of five parishes, two in the town, and three in the suburbs. The parish church of Notre Dame, in the town, was collegiate before the revolution; it was the most antient in the diocese of Autun (in which Beaune was included), and one of the handsomest in the kingdom; but whether from any injuries sustained by it during the revolution, or from some other cause, it is now considered to be surpassed in beauty by the church of St. Pierre (or St. Peter), also in the town. Before the revolution, Beaune possessed several religious establishments. There were monasteries of Carthusians, Jacobins or Dominicans, Cordeliers, Capuchins, and Minims; nunneries for Carmelites, Dominicans, Ursulines, and nuns of the Visitation; and an abbey for Cistertian nuns. There was also a college, large and well built, conducted by the priests of the oratory; as well as a commandery of the order of Malta. Several of these establishments were in the suburbs.

Besides these institutions, now wholly or in great part suppressed, Beaune possessed two hospitals, which, so far as we can gather, still remain. One of these, for the sick, founded in 1443 by Nicholas Rollin, chancellor of the Duke of Burgundy, and farther enriched and embellished by his son Cardinal John Rollin, bishop of Autun, is of vast extent. Its architecture contains some remains in the Gothic style; and it constitutes the most remarkable edifice of Beaune. In the *Dictionnaire des Gaules*, &c., of Expilly (Paris, 1762), it is described as consisting of nine wards (*salles*), five of which were for the sick of the humbler classes, and four for invalids of a wealthier class, who paid for the attendance given them. How far this arrangement is still continued we are not aware: but a later authority, M. Millin, who travelled in 1804, attests that the hospital was then very well kept up. Louis XI., king of France, when he was looking over this hospital, is said to have replied to some one who was praising the charity of its founder, the Chancellor Rollin, 'It is just that he, who has made so many poor, should provide an hospital for their reception.' The duties of attendance at this hospital were performed by females bound by a religious vow, which they took only for a year, and when any one of them took her vows for the first time, she presented the establishment with twelve dozen turkeys, and the same number of chickens, of pigeons, of partridges, and of hares.

The other hospital is for orphans of both sexes, and for such poor persons as cannot maintain themselves. The inmates are employed in carding and spinning wool. There was formerly an establishment called 'La Chambre des Pauvres,' for affording relief to those destitute persons who were ashamed to beg, and to teach children of both sexes some trade. We know not whether it still exists.

Besides the hospitals, Beaune has a library, but it does not contain any valuable treasures (M. Millin); a *collège*, or high school; an agricultural society; a theatre; and a Vauxhall. It has a *Tribunal de première instance*, a court of justice which may perhaps be compared with our quarter sessions, and a *tribunal de commerce*, a committee of leading merchants or dealers, which takes cognizance of disputes in commercial affairs. Woollen cloths, serges and druggets, leather, cutlery, casks, and vinegar are among the articles manufactured here. There are in the neighbourhood quarries of granite, and of what our authority (the *Dictionnaire Universel de la France*) terms, 'pierre polie,' polished stone, perhaps marble.

Beaune has been asserted by some, but without reason, to be the Bibracte of Cæsar. (*Comment de B. G.*, lib. i. and vii.) It is not known to have existed in the time of the Romans, and is first mentioned in the *Chronicles of the Monasteries of Burgundy*. There are traces of a Roman road in the neighbourhood running east and west (on the east as far as the river Doubs), but this passed to the north of Beaune. The district was known under the designation of Pagus Belnisus, in the time of the kings of France of the Carlovingian race. Beaune was raised from being a mere petty place, or a castle, to the rank of a town, by Eudes III., duke of Burgundy, in the year 1203. Several of the dukes of Burgundy held their court here; and here also the parliament of Burgundy at one time sat. When the Burgundian States came into the hands of the French kings, Louis XII., king of France, built a castle here, which was considered the strongest place in Burgundy; but it was dismantled in 1602, by order of Henry IV., who feared that the party of the Maréchal de Biron would avail themselves of it in their projected revolt. Only the ruins of it now remain.

The inhabitants of Beaune amounted, in 1832, to 9272 for the town, or 9908 for the whole commune. They are reproached by the inhabitants of Dijon for their stupidity, and the most ridiculous stories are current respecting them. Piron, the dramatist, a native of Dijon, nearly lost his life when on a visit to Beaune; so much had he irritated the Beaunois by his sarcastic witticisms.

The arrondissement of Beaune comprehends 199 square miles, or 127,360 acres, and had, in 1832, a population of 117,996. There are in it 10 cantons, and 203 communes or parishes. (Martinière; Expilly; Millin; *Dictionnaire Universel de la France.*)

There is a small town (bourg) called Beaune (with the distinctive appendage *la-Rolande*, to distinguish it from the foregoing), in the arrondissement of Pithiviers, in the department of Loiret. It is on the road from Pithiviers to Montargis, and upon a small stream which falls into the Loing, an affluent of the Seine: in 48° 5′ N. lat., and 2° 26′ E. long.

It is said to have been once a place of greater importance, and to have belonged to the nephew of Charlemagne, the chivalric Roland (the Orlando of Ariosto), who gave it to the monks of the abbey of St. Denis. The growths of wine in the neighbourhood, though tolerably good, are yet far inferior to those of Beaune in the department of Côte d'Or. The population given in the *Dictionnaire Universel de la France* (Paris, 1804), was 2028. We have no later account.

The name of Beaune applies to several other places, all of inferior importance.

BEAUNE, commentator on Des Cartes. [See DES CARTES.]

BEAUPRE'AU, a town in France, the capital of a sub-prefecture or arrondissement in the department of Maine et Loire; perhaps about 213 road miles from Paris. It is in 47° 12′ N. lat., and 1° 0′ W. long. Beaupréau is on the right bank of the little river Evre, a tributary of the Loire, which falls into that river on its left or south bank, and is situated in a rich soil. It is a place of considerable trade: there are several manufactories of linens and handkerchiefs, of flannels, and other woollen fabrics. There are also dye-houses and tan-yards. The population in 1832 was 3207 for the whole commune.

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[*] This name of the river we give from the great *Map of France*, by MM. Maraldi and Cassini. It is called in several of our authorities, Bougeoise, Boujoize, or Bourgeoise. It is distinctly stated by Martinière and Expilly, that Beaune is on this river, and herein they are supported by Maraldi and Cassini; but in the maps of A. H. Brué, (Paris, 1818,) and of the Society for the Diffusion of Useful Knowledge, the river is called Bouzoire, and is not made to pass within two or three miles of Beaune. This last discrepancy probably arises from the name being given to different branches of the same stream, and that laid down as the Bouzoire in the maps of Brué and the Society is undoubtedly the principal.

Prior to the Revolution there were two parish churches, and a third, a collegiate church; but the revenues of the latter were small, and its clergy far from numerous. The territory of Beaupréau gave successively the title of baron, marquis, and duke, to its possessors.

The arrondissement of Beaupréau comprehends 560 square miles, or 358,400 acres; and had in 1832 a population of 104,947.

BEAUSOBRE, ISAAC, was born in 1659 at Niort, in the province of Poitou. His ancestors had emigrated from France on account of their being Protestants, at the time of the St. Bartholomew, but returned afterwards in consequence of the edict of Nantes. Young Beausobre studied at Saumur, was afterwards ordained, and took charge of the Protestant church of Châtillon sur Indre, in Touraine. When Louis XIV. renewed the persecution against the Protestants, by the revocation of the edict of Nantes, in 1685, the church of Châtillon was closed, and the gates sealed by the King's officers. Beausobre broke the seals, and preached as usual on the Sunday, in consequence of which he was obliged to take refuge in Holland. From Holland he went to Dessau, in 1686, as chaplain to the Princess of Anhalt Dessau. His first work was *Défense de la Doctrine des Réformés*, Magdeburg, 1693. In 1694 he removed to Berlin, and took charge of one of the French Protestant churches in that capital. He was afterwards made chaplain to the court, inspector of the French college, &c. He enjoyed the favour of the King, Frederic William I., whose son, the Crown Prince, afterwards the Great Frederic, also conceived great regard for him. Beausobre passed the remaining forty-six years of his life at Berlin, where he died in June, 1738, much regretted, both on account of his personal character and his extensive learning. He wrote numerous works, the principal of which is his *Histoire critique de Manichée et du Manichéisme*, 2 vols. 4to. 1734-9. The first part of this work is historical. The author derives his account of Manes, or Mani, from Syrian, Persian, and Arabic authorities, and exhibits the great discrepancy existing between their narratives and those of the Greek and Latin writers. He characterizes the history of Manes, which is attributed to Archelaus Bishop of Cascar or Carcar, in Mesopotamia, as a romance published 60 years after Manes' death. (*Acta Disputationis Archelai Episcopi Mesopotamiæ et Manetis Heresiarchæ*, in Zuccagni's *Monumenta Ecclesiæ*, Rome, 1698.) The second part treats of the doctrines, rites, church discipline, and morals of the Manicheans. Beausobre discards many absurdities attributed to that sect, and refutes many odious charges brought against it. He exposes and examines impartially their real tenets, their practices, and their superstitions. The work is full of varied and interesting erudition. The second volume was edited by Formey after Beausobre's death, with a short biography of the author by the editor. Beausobre intended to add a third volume, relative to the modern sects which have been accused of Manicheism. He undertook, with L'Enfant, a French version of the New Testament from the Greek text, which contains a long and valuable introduction, and numerous explanatory notes: 2 vols. 8vo. Amsterdam, 1718, reprinted in 1741. The introduction was translated into English, London, 1726, and is used in some colleges in the English Universities. He also began a history of the Reformation on a very large scale, which he left in an imperfect state. It was published at Berlin in 1785, in 4 vols. 8vo. In conjunction with other literary men, he began the journal and review called *Bibliothèque Germanique*, the first volume of which appeared in 1720, and which was carried to the fiftieth volume. Beausobre continued to the last to be one of the principal contributors, and wrote nearly half of each volume. This work was chiefly engrossed by notices of works of German writers, and also of writers of the northern kingdoms, Denmark, Sweden, Poland, &c. The chief object was to make these writers known to the rest of Europe through the medium of the French language, in which the journal was written. A sequel to this work was begun after Beausobre's death by Mr. Formey, under the title of *Nouvelle Bibliothèque Germanique*. Beausobre wrote also *Remarques critiques et philologiques sur le nouveau Testament*, published after his death at la Haye (the Hague), 2 vols. 4to. His *Sermons*, in 4 vols. 8vo., are considered worthy to be placed by the side of the *Sermons* of Saurin. Beausobre left several other works in MS., complete and incomplete, especially on the various sects of the dark ages, the Paulicians, the Albigenses, &c.

BEAUSSE, or **BEAUCE,** or, as it is written in some very old maps, **BEAULSE,** a district in the former province of Orléannois in France. As this district never formed a distinct jurisdiction, either civil or ecclesiastical, its limits are very vague and undetermined. It included, at any rate, the territories of Chartrain, Dunois, and Vendômois (Expilly, *Dictionnaire des Gaules*); and according to other authorities it included also portions of Orléannois Proper, and Gâtinois, and even of Hurepoix and Mantois, which were in the Ile de France. It extended from about 25 miles south of Paris, on one side to the Loire, and on the other to the Canal de Briare. (*Dictionnaire Universel de la France*, and *Encyclopédie Méthodique*.) The country consists of an elevated plain, or table-land, marked in some maps as the Plateau d'Orléans, in which not a mountain is seen; and though it lies between two of the principal rivers of France (the Seine and the Loire), yet the running waters are very few. From the scarcity of springs and streams, the inhabitants are obliged to have tanks and pools to preserve the rain water. They have also some wells, which the elevation of the surface obliges them to make very deep, but the water is not good. Notwithstanding the want of water, the country is however so productive in wheat, that it has acquired the title of the granary of Paris. (Piganiol de la Force.) A great quantity of sheep are also fed here; and the shepherds were formerly in high repute among the simple peasantry for knowledge which was really neither within their possession nor their reach. Mutton and wheat appear to be the only products of the district of any consequence. There are no vines or woods to any extent.

Chartres, the principal city in this district, contained in 1832 13,576 inhabitants in the town, or 14,439 in the whole commune. The other chief places are Châteaudun, formerly capital of Dunois (population 6461), and Vendôme (population 6590 for the town, or 7771 for the whole commune), capital of the Vendômois. [See Chartres, Chateaudun, and Vendôme.]

The name Beauce, in a more restricted application, is given to the district of Chartrain. The Latin form of it is Belsia, or Belsa, and it occurs in the writings of Fortunatus, an author of the latter part of the sixth century.

BEAUTY is that quality in visible objects in consequence of which their colours and forms are agreeable to the human mind. The word *beauty* (as Mr. D. Stewart observes, *Essay on Beauty*, c. ii.) was first applied to objects perceptible by the sight; and, by an easy transition, it has been extended to objects perceptible by the hearing; as when we speak of beautiful music, a beautiful tune, voice, &c. The instances of words which properly signify an impression on one sense being used to signify an impression on another sense are very numerous: thus we sometimes pass from the sight to the touch, as when we speak of lightness or heaviness of form and of colour; from the touch to the hearing, as a sharp, piercing, thrilling, penetrating, or heavy sound; from the touch to the smell, as a pungent smell; from the touch to the sight, as harsh and soft colouring; from the hearing to the sight, as monotony of colour, tone of a picture, harmony of colours; from the taste to the sight, as mellow colouring; from the taste to the hearing, as sweet music.

This proneness to transfer words from one object of sense to another does not, however (as Mr. Stewart remarks), explain why the word *beauty* should be extended only to agreeable *sounds*, and not to agreeable *tastes* or *odours*. That, however, there is a closer affinity between the perceptions of sight and hearing than between those of sight and any other sense, it is not difficult to perceive; and the fact is satisfactorily traced by the same writer to the following causes:—1. The *picturesque* effect which custom, in many instances, gives to sounds; as when a tune calls up the image of a person's home or the haunts of his childhood. 2. The *expressive* power of sounds, as in the case of the human voice, when the expression of the countenance corresponds with the tones of the voice and the meaning of the words which it utters. 3. The significant power of sounds, in consequence of conventional speech. In this way they every moment present pictures to the imagination; and we apply to the description as to the thing described (with hardly any consciousness of speaking figuratively) such words as *lively*, *glowing*, *luminous*, *splendid*, *picturesque*. 'To these considerations should be added (as the same writer justly observes), as a cause conspiring powerfully to the same end, the intimate association which, in our apprehensions, is formed between the eye and the ear, as the great inlets of our acquired knowledge, as the only *media* by which different minds can communicate together, and as the organs by which we receive from the material world the two classes of pleasures which, while they surpass all the rest in variety and in duration, are the most completely removed from the grossness of animal indulgence, and the most nearly allied to the enjoyments of the intellect. The unconsciousness we have in both these senses of any local impression on our bodily frame may perhaps help to explain the peculiar facility with which their perceptions blend themselves with other pleasures of a rank still nobler and more refined.' (Ibid. c. vi.)

But although the epithet *beautiful* is never applied to the perceptions of any sense except those of seeing and hearing, yet it is extended to the results of some intellectual processes, as when we speak of a beautiful chain of reasoning, a beautiful poem, a beautiful metaphor, a beautiful language, a beautiful machine, a beautiful contrivance of nature, &c. When the word *beauty* is thus employed, it is merely a vague term of praise, and is nearly synonymous with *admirable*. 'The word beauty (as Mr. Knight remarks) is often applied to a syllogism or a problem; but then it means clearness, point, or precision, or *whatever else be the characteristic excellence of that to which it is applied*.' (*Inquiry into the Principles of Taste*, p. 259.) As the effect of beauty in visible objects is to produce admiration, all beautiful objects are also admirable; and thence it was an easy step to apply the epithet beautiful to things which produced admiration, although this feeling did not arise from the cause which produces it in the contemplation of visible objects. Similar transfers may be observed in other words: thus the word *law* properly signifies a general command given by one intelligent being to another; but because the *effect* of such a command is to produce an uniformity of conduct in the persons to whom it is addressed, the term *law* has been extended to those operations of nature in which an uniformity of phenomena prevails, although the *cause* of the uniformity is altogether different. [See ANALOGY.]

In the following remarks on the nature and causes of beauty, we shall limit ourselves to the original and appropriate meaning of the word in question, viz., the beauty of *visible objects*.

The beauty of visible objects consists of two parts, viz., the *beauty of colour* and the *beauty of form*, which, although closely connected with each other, arise from different sources, and from sources of a different character, inasmuch as the one appears to be, in most cases, a simple emotion, and therefore an ultimate fact, of which no explanation can be given, while the other is a pleasure derived from association, which is susceptible of analysis.

There cannot, in our opinion, be any doubt that certain colours, and certain arrangements of colours, are naturally, and in themselves, pleasing to the eye. Children are observed to take delight in brilliant colours before they have learnt to connect any agreeable ideas with them. The analogy of the other senses would, *à priori*, lead to this conclusion: for as there are certain odours, tastes, and sounds, which are naturally pleasing or displeasing to the nose, the tongue, and the ear, so it may be presumed that there are certain colours, and combinations of colours, which are naturally pleasing or displeasing to the eye. Although, as will be presently shown, one branch of beauty is entirely founded on association, the feeling of beauty cannot be derived from association *alone*. 'It is the province of association (as Mr. Stewart has justly observed) to impart to one thing the agreeable or disagreeable effect of another; but association can never account for the *origin* of a class of pleasures different in kind from all the others we know. If there was nothing originally and intrinsically pleasing or beautiful, the associating principle would have no materials on which it could operate.' (*Essay* i. c. 6.)

This origin of the feeling of beauty appears to us to consist in the pleasure derived from the contemplation of colours, a pleasure, in most cases, purely sensual and organic, and as incapable of explanation as the pleasure derived to the mind through the medium of the ear from the harmony of sweet sounds. An instance of purely sensual beauty is afforded by *precious stones*, which all ages and nations, antient and modern, barbarous and uncivilized, have agreed in admiring. That their beauty does not arise from any collateral associations of their durability and hardness is evident from this, that in the unpolished state, when they are equally hard and durable, they excite no admiration. The precious *metals* also are beautiful for the same reason; though they have other qualities besides their beauty which give them exchangeable value: whereas the value of precious stones is almost exclusively owing to their beauty. Flowers, the plumage of birds, the rainbow, the setting sun, the clear blue expanse of the sky or the sea, also derive their beauty in great measure from the mere sensual impression on the organ of sight. Indeed, there are only a few cases (such as that of the beauty of complexion, which will be mentioned below), in which the beauty of colour is derived from association, and therefore admits of a resolution into simpler elements.

The beauty of *form* belongs altogether to a different category, and is derived (as we shall attempt to show) from an association inseparably connected with the form of any object, and necessarily and instantaneously suggested by it, viz., its adaptation to the purpose which it is intended to fulfil. The beauty of form, as arising from this source, is however subject to certain conditions, the chief of which is, that the object should either possess the beauty of colour, or at least should be of such a colour as is completely inoffensive to the eye. The manner in which the organic emotion works back upon the pleasure of association is well illustrated by the following remarks of Mr. Payne Knight:—'The habit,' he says, 'which we acquire of spontaneously mixing associated ideas with organic perceptions, in contemplating objects of vision, is the principal reason why the merely sensual pleasures of this organ are in adult persons very limited and feeble. Children are delighted with every gay assemblage of colours, but as the intellect and imagination acquire strength by culture and exercise, they obtain so much influence over the sense as to make it reject almost every gratification in which one of them does not participate. But nevertheless the sense acquires a similar negative power, in its turn, by the same habit of association; and if there be anything in the object of contemplation to offend or disgust, it effectually mars the gratification of every other faculty. Thus, in the higher class of landscapes, whether in nature or in art, the mere sensual gratification of the eye is comparatively so small as scarcely to be attended to; but yet if there occur a single spot, either in the scene or the picture, offensively harsh and glaring, all the magic instantly vanishes, and the imagination avenges the injury offered to the sense. The glaring and inharmonious spot, being the most prominent and obtrusive, irresistibly attracts the attention, so as to interrupt the repose of the whole, and leave the mind no place to rest upon. It is in some respects the same with the sense of hearing. The mere sensual gratification arising from the melody of an actor's voice is a very small part, indeed, of the pleasure which we receive from the representation of a fine drama; but, nevertheless, if a single note of the voice be absolutely cracked and out of tune, so as to offend and disgust the ear, it will completely destroy the effect of the most skilful acting, and render all the sublimity and pathos of the finest tragedy ludicrous.'—p. 95.

The beauty of form, although in strictness not connected with the colour of any object, is nevertheless so far dependent on it, that if the colour should be offensive to the eye, the pleasure derived from the beauty of form is much impaired, or is even destroyed. Beauty of form, as arising from the fitness of the form for its end, requires that the colour of the object should be such as shall not interfere with the effect produced by the mutual relations of its parts.

There is, however, another condition for the existence of beauty of form, beyond the perception of its fitness to its purpose, the statement of which will complete our definition of this kind of beauty. If, then, those colours are either absent or present, whose absence or presence is essential to the perception of beauty in any object, simply as an organic impression, the beauty of form in any object mainly depends on our sense of its adaptation to the end for which it is destined, provided that this end is *agreeable to contemplate*, and is such that the mind *dwells on it with pleasure.* Hence the form of the antelope, the swan, or the tiger, is considered beautiful, because we take a satisfaction in contemplating the movements which those forms are admirably fitted to produce; but the form of the pig's snout is not considered beautiful, because the mind flies with disgust from the filthy purposes for which that animal employs it. So likewise we call the outward form of the arms, legs, neck, &c., of the human figure beautiful, when their form is suited to their respective uses; but no one finds any beauty in the form of the human stomach, or intestines, or liver, though equally well fitted for their several ends, because they suggest the notion of processes which men do not willingly contemplate. (Burke's *Sublime and Beautiful,* part iii. s. 6—8.)

Perhaps, in strictness, it might be thought that the simple emotion derived from the *colour* of objects is alone properly entitled to be considered as the feeling of beauty; and that the beauty of *form* in any object, derived from a sense of its fitness to its end, is only a pleasing association, allied indeed to the feeling of beauty by a close analogy, but still distinct from it. This question (which in fact is merely verbal) we have not sufficient space to discuss at length; nevertheless it appears to us that all ages and nations have agreed in speaking of the beauty of *form* as well as of *colour,* and that we are justified in considering as included in the feeling of beauty those emotions which are susceptible of analysis, as well as those which are not.

Having made these general remarks, we will proceed to explain, with somewhat more detail, the application of the principles last stated.

The *beauty of form,* arising from a perception of utility, or of fitness of certain means to produce a certain end, may be observed both in animate and inanimate objects – in the works both of nature and of art. In animate beings we are gratified by the recognition that a certain form is suited to the wants of the animal, and that certain desired effects or motions are produced with ease and little effort. It is on this principle that we admire the beauty of the human form, every part of which is perfectly fitted for its intended purposes, and that we admire the motions of a horse, a stag, a greyhound, or a cat, as being made without any apparent trouble or difficulty, and as the result of a power which accomplishes its end with the least possible expense of exertion. The same feeling which makes us take pleasure in movements and forms which indicate ease, leads us likewise to dislike those which express constraint and toil: hence, both in nature and art, all forced and laboured attitudes, all tension of muscle, all visible and overstrained efforts to produce a certain effect, or to express a certain feeling (which is the source of affectation in art), are offensive to the taste. And thus all angular and jerking action, and all heavy dragging of the limbs, are devoid of beauty, as being signs of violent and toilsome effort, and as equally removed, though in contrary ways, from that equable, flowing, and easy motion in which grace consists. Nor is it only in animals that the marks of ease are agreeable to us; the varied, flowing, and irregular outline which characterizes the free growth of plants, is beautiful on the same principle: 'wherever (as Mr. Alison remarks) we find vegetables, or any other delicate body, assume a winding form, we are impressed with the conviction of its being easy, agreeable to their nature, and free from force or constraint. On the contrary, when such bodies in the line of their progress assume angular forms, we have a strong impression of the operation of force, of something that either prevents them from their natural direction, or that constrains them to assume an unnatural one.' (*Essay on Taste,* vol. i. p. 334.) It was the perception of this fact which induced Hogarth to imagine that beauty of outline consists in its serpentine direction, which is true of those animate and organized beings whose wants require them to assume this shape; but does not apply to other objects, such as buildings or walks, in which convenience requires a straight or angular form, and in which a straight or angular form is therefore beautiful. The beauty of *proportion* or *symmetry* in the forms of animals is likewise derived from a sense of utility; for it is manifest that small limbs would not suit the wants of a large body; that a large foot would be an incumbrance to a small leg; that a large hand would be an incumbrance to a small arm, &c. For the same reason different animals have different proportions, as their bodies are formed on different scales and adapted to different purposes; and thus the form or size which is beautiful in one animal would be monstrous in another, as if the long neck of the camelopard, an animal living on the leaves of trees, were given to the lion, whose teeth and claws are adapted to seizing and tearing the flesh of animals; or if the antlers of a stag were fixed on the forehead of a dog. (Horace, *De Arte Poet.*, at the beginning; on some exceptions to this principle, see Hogarth's *Analysis of Beauty,* c. 6; Müller's *Archæologie der Kunst,* p. 11.) And thus the limbs of the human body, or the features of the human face, are beautiful only in their proper places, when they are taken in combination with the other parts of the body, and so manifestly suggest the notion that they are fitted to perform their respective offices.

> ''Tis not a lip or cheek we beauty call,
> But the joint force and full result of all.'

All incongruous combinations in animate beings are contrary to beauty: for example, the pink and white complexion, which suits the delicacy and weakness of the female form and character, is less becoming to man than the dark-red and brown, which characterize the sun-burnt cheek of a person accustomed to rural labours, to athletic exercises, to field-sports, and to a military or naval life. Feminine forms and colours are sometimes admired in young men; and in women, as in gipsies, a dark complexion is often extremely beautiful: but an effeminate appearance is not in general more approved in men than an effeminate mind; and muscular or athletic forms in women are commonly considered coarse and clumsy, a judgment confirmed by the taste of the Greek artists, who, in representing Diana as a huntress, with her dogs, her arrows, and her garments girded up for running, never give her a masculine form.

Hence the *middle* form in the different species of animals is the most beautiful; that is to say, it is that abstract form at which the painter or sculptor arrives by rejecting all the faulty extremes, and which he takes as the type from which the varieties of individuals diverge in different directions. Thus the most beautiful size in man is between a giant and a dwarf; or, to take an instance in a single feature, the most beautiful form of the nose is when the outline is straight: any deviation from this form on either side, so as to make it like that of the fauns in Greek sculpture, or to give it a protuberance, is injurious to the beauty of the human countenance. (See Müller, *Archæol. der Kunst,* s. 329, n. 5.) And as it is with the general form of the human race, or of the several limbs and features, so is it with particular classes. Thus, 'though the forms of childhood and age differ exceedingly, there is a common form in childhood and a common form in age, which is the more perfect, as it is the more remote from all peculiarities.' (Reynolds' *Discourse* 3.) Reynolds, however, is mistaken when he goes on to say that the middle form is beautiful because it is the most common (see *Idler,* No. 82); for, as has been truly remarked, there are many forms of frequent and ordinary occurrence which are by no means beautiful. The beauty of the middle form arises from its being that which is the most suited to the purposes and wants of the animal: thus if a nose, a mouth, or an eye was very much above, or very much below the average size, it would either be inconvenient from its magnitude, or incapable of performing its functions on account of its smallness. Having once established this maxim in our minds, we forget, as in many other instances, the principle on which it is founded; and although a nose, for example, would be equally fitted for its purposes if it deviated slightly from the straight line, yet we consider that line alone as the standard of ideal beauty.

The reason why we are gratified by the perception of congruity or fitness in the general structure of an animate body and of its several component parts, by the appearance of ease and grace in the movements of animals, and universally by all the marks of activity, vigour, energy, and health, is that we are gratified by the absence of suffering, as we are pained by its presence, as when a person not hardened by custom to such sights witnesses an execution, a surgical operation, the slaughter of animals, a field of battle covered with the dead and dying, a hospital, &c. Hence all those objects which suggest the notion of pain, discomfort, or decay, are devoid of beauty. Such is the case with animals, as the elephant or the hippopotamus, which are heavy and cumbrous in their shape and appear to drag their limbs with difficulty and effort; suggesting none of those impressions of joy and satisfaction in the animal, exulting in its strength and agility, which are occasioned by the unshackled movements of the horse, the antelope, or the stag. (See the comparison of the horse at the end of the 6th *Iliad.*) Hence likewise all deformity in animals is inconsistent with beauty, and is ugly in proportion as the shape of the limb or body deviates from the standard form, and is unfitted for the purposes for which it is intended. 'The disgust,' says Mr. Stewart, 'which monstrous animal productions produce seems to arise principally from some idea of pain or suffering connected with their existence; or from the obvious unfitness of the structure of the individual for the destined purposes of his species. No similar emotion,' he continues, 'is excited by an analogous appearance in the vegetable or in the mineral kingdoms; or even by those phenomena which contradict the uniform tenor of our past experience with respect to nature's most obvious and familiar laws.' (c. 7.) The reason of this difference is, that in inanimate objects which deviate from their ordinary and natural form there is no cause for painful sympathy, as the object is unconscious of its defective structure. In the cultivation of flowers and ornamental trees, the object indeed is for the most part to produce an artificial, and to a certain degree a monstrous size; which all must admit to be more beautiful than the natural and unimproved state of the plant. But even in this respect there is a limit; and although the size consistent with beauty in the vegetable kingdom is indefinite, it is not quite unlimited. An oak as high as a mountain would probably cease to be beautiful; and even the diseased growths and protuberances in trees would become displeasing to the sight, if they were enlarged to an excessive size.

For the same reason that deformity in animals is inconsistent with beauty, all appearance of disease, decay, and death is loathsome and hideous: as the ghastly look of a bleeding wound, the convulsive movements of agony, the pale, livid, or emaciated countenance of a person expiring under the rapid progress of a pestilential disease, or wasting away with famine, atrophy, or consumption, the mouldering remains of a dead body, or the empty frame of a skeleton. Hence, when Romeo is described by Shakspeare as descending into the vault, in order to see Juliet's corpse, he says, on discovering that the bloom had not faded from her face,

'O my love! my wife!
Death, that hath suck'd the honey of thy breath,
Hath had no power *yet* upon thy beauty.
Thou art not conquered: beauty's ensign yet
Is crimson in thy lips, and in thy cheeks,
And death's pale flag is not advanced there.'

The same feelings are transferred by us to the vegetable kingdom, though with a great diminution of their intensity: thus the yellow or brown colour of the faded leaf is for the most part less beautiful than the brilliant and vivid green of spring and summer vegetation; nevertheless, there is probably no person at all alive to the beauties of external nature who has not admired the rich and varied tints of an autumn landscape, produced by the irregular discolouration of the leaf. When, however, decay has completed its work, all beauty vanishes; and a tree quite bared of its leaves has nothing more to recommend it to the eye than if it were actually dead. And when a tree has through age or by accident undergone a partial decay, its beauty is impaired, though its wreck may still suggest agreeable notions of power and grandeur, the memory of former vigour, of resistance to time and the elements, or to the destructive agents of nature. Such are in part the feelings excited by the sublime picture of Milton:—

'As when heaven's fire
Hath scathed the forest oaks or mountain pines,
With singed top their stately growth, though bare,
Stands on the blasted heath.'

In general, however, all appearance of poverty, meagreness, or decline of vegetation is, unless compensated by countervailing circumstances, unfavourable to beauty. (See Price's *Essay on Beauty*, p. 29.)

The beauty derived from a perception of utility is not confined to the works of nature, but is common to the works of constructive art, in which the adaptation of means to ends is equally observable, and in which there is a similar correspondence of the constituent parts. Thus in buildings each different part has a manifest and visible purpose—as the column to support a weight on the ground, the arch to support a weight over an opening, the windows to admit light and air, the projection of the roof to throw the rain-water from the walls, &c. Every part of a building has therefore its peculiar form and beauty, dependent on its destination. And the same is the case with different *kinds* of building: the disposition of parts which would be beautiful in a church or a palace, would be displeasing and absurd in a cottage or a fortified castle. 'Grecian temples, Gothic abbeys, and feudal castles,' says Mr. Payne Knight, 'were all well adapted to their respective uses, circumstances, and situations: the distribution of the parts subservient to the purposes of the whole; and the ornaments and decorations suited to the character of the parts, and to the manners, habits, and employments of the persons who were to occupy them: but the house of an English nobleman of the eighteenth or nineteenth century is neither a Grecian temple, a Gothic abbey, nor a feudal castle; and if the style or distribution, or decoration of either be employed in it, such changes and modifications should be admitted as may adapt it to existing circumstances; otherwise the scale of its exactitude becomes that of its incongruity, and the deviation from principle proportioned to the fidelity of imitation.' (*On Taste*, part ii. ch. 2. §. 54; see also Lord Aberdeen on *Grecian Architecture*, p. 26-35.)

For a similar reason all ornament in architecture should be subordinate to use, and should grow out of and be suggested by it: whence professed architects, with whom the idea of decoration is predominant, often fail in their attempts to produce beauty, and in many cases seem rather to adapt the building to the ornaments than the ornaments to the building. Accordingly it may be observed, that engineers whose attention is solely directed to the *use* of that which they plan, often construct more *beautiful* buildings than persons with whom beauty is the chief consideration. And generally it may be observed, that all ornament, if accumulated to an excessive degree, either from a love of gaudy magnificence, or for the sake of ostentation, is devoid of beauty.

' 'Tis use alone that sanctifies expense,
And splendour borrows all her rays from sense.'

For the same reason that neatness, freshness, and regularity are pleasing to us in buildings, as being associated with the ideas of comfort and enjoyment, 'we require,' as Mr. Knight has observed, 'that immediately adjoining the dwellings of opulence and luxury, everything should assume its character, and not only be, but appear to be dressed and cultivated. In such situations neat gravel walks, mown turf, and flowering plants and shrubs, trained and distributed by art, are perfectly in character.' (ii. 2. 29.) In laying out the direction of roads or walks, the beauty of the line is likewise determined by its fitness. Thus in an open and level plain a straight line is most agreeable to the eye; in broken and irregular ground, the line which adapts itself to the shape of the country, by constantly keeping the same level, is to be preferred. The pleasure which is felt in following the windings of a road carried through a mountain-pass, and creeping round the declivities of the rocks, is enhanced by a sense of skill in the contriver and executor, and of difficulty successfully overcome.

The beauty of furniture and dress is likewise in a great measure derived from their *fitness*; though, with regard to dress in particular, our taste is liable to be determined by many independent, and often conflicting, considerations, as novelty, fashion, &c., some of which will be mentioned below. Symmetry of parts, which the eye often so rigidly exacts in architecture, in gardening, in the internal decoration of a house, in dress, &c., arises in great measure from a sense of utility: thus, for example, in the construction of a house, the entrance is obviously best placed in the centre of the wall, as it affords the easiest communication to the various parts of the building: the windows are most convenient if they are at nearly equal distances from each other, and are not crowded together in some places and separated by wide intervals in others: the columns best perform their work if they are separated by equal spaces, and therefore support equal weights*. The pleasure derived from symmetry in works of art is, however, not confined to its *beauty*, but in part arises from the evidence which it affords of an uniform and extensive plan having been conceived and executed, and in part from that satisfaction which we take in the perception of resemblances, as well in outward objects as in the efforts of wit and imagination. It was probably the latter feeling (combined, however, with an excessive attempt to imitate in the garden the forms of architecture) which gave rise to the style of gardening described by Pope, in which

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* The principle of the *sufficient reason* by which Mr. Stewart, c. 2 and 4, explains the beauty of symmetry in works of art, appears to us to be included in that of fitness; for if there is no reason why a door should be placed nearer one than the other end of a house, why a picture should be hung nearer one than the other end of a room, the middle is evidently the fittest place. Hence in cases where there is an evident fitness in irregularity, symmetry is not beautiful. 'An irregular castellated edifice (says Mr. Stewart) set down on a dead flat, conveys an idea of whim or folly in the designer. . . . The same, or yet greater irregularity, would not only satisfy but delight the eye in an antient citadel, whose groundwork and elevations followed the rugged surface and fantastic projections of the rock on which it is built. The oblique position of a window in a house would be intolerable; but utility, or rather necessity, reconciles the eye to it at once in the cabin of a ship.'—c. 2.

> 'Grove nods at grove, each alley has its brother,
> And half the platform just reflects the other.'—(*Epist.* 4.)

This formal style of gardening was founded on a just sentiment of what is suited to the immediate neighbourhood of a house, both in respect of the comfort of the inhabitants and the agreement with architectural forms; but in clipping shrubs into unnatural and fantastic shapes, and in laying out the ground in over-minute and complicated patterns, it sometimes carried a just principle to a vicious excess. (See Walpole's history of the modern taste in gardening in his *Anecdotes of Painting;* and Whately *On Gardening*, §. 139—47.)

The garden, in fact, forms the *transition* from the forms of architecture to those of landscape, and is a sort of middle term by which the hard, angular, and precise forms of art are melted into the flowing, irregular, and infinitely varied outlines of nature. Hence the quantity and character of the ornament in a garden ought to depend on the style of the building to which it belongs; and thus a richly decorated garden would not harmonize with a perfectly plain house: and, on the other hand, a large building loaded with architectural ornament seems to require something more than a few shrubs, planted irregularly around it, which scarcely differ in character from the neighbouring country. It is on this principle that small cottages and houses, which make no pretension to architectural beauty, are much improved by the growth of creepers and other plants upon their walls, which, as it were, makes them a part of the surrounding vegetation. On the other hand, in buildings which, from their imposing size and elaborate execution, have an independent character of their own, creepers usually suggest a notion of discomfort and neglect, a feeling which has no place if the building is not inhabited by man, and which, therefore, is not awakened by the sight of an antient mouldering ruin overgrown with ivy. (See Price *On the Picturesque*, vol. i. p. 287, vol. ii. pp. 134, 170, 177, 218; Lord Aberdeen *On Grecian Architecture*, p. 45.)

The perception of fitness or congruity appears to us to account for the beauty of form in nearly all cases, and occasionally for the beauty of colour: there are, however, other circumstances which contribute to produce or heighten that feeling, or are conditions necessary to its existence. Such, for example, is the beauty of *expression* in the human countenance when the notion conveyed to the mind is that of benevolence, cheerfulness, tranquillity, innocence, simplicity, or affection. (See Bacon's *Essay on Beauty*.) The distinctness and rapidity with which the eyes express the emotions of the mind contribute very powerfully to their beauty. *Novelty* likewise is, to a certain extent, essential to the perception of beauty; and as the most beautiful object would, by its continual presence, soon pall upon the sight, and produce complete indifference, so objects, whose beauty will not bear close examination, and is only calculated to please for a time, are agreeable merely from their novelty and freshness. This is the case to a great extent with fashions in dress, which are continually changing, and in which the newest fashion often seems the most beautiful, although it may have no other recommendation than its novelty. It does not, however, seem to us satisfactory to explain the beauty of modes of dress by saying, that 'while they were in fashion they were the forms and colours which distinguished the rich and the noble, the eminent, the envied, the observed in society; they were the forms and the colours in which all that was beautiful, and admired, and exalted, were habitually arrayed. They were associated therefore with ideas of opulence, and elegance, and gaiety, and all that is captivating and bewitching in manners, fortune, and situation, and *derived the whole of their beauty from those associations*.' (*Encycl. Britan.*, art. 'Beauty,' Suppl. vol ii. p. 186.) For, in the first place, there is always a certain regard to utility in all kinds of dress and ornament for the person: colours are selected with reference to the colour of the complexion or hair, different dresses become the young and old, &c.; and those forms are usually chosen which, if not the *most* adapted to the motion of the limbs and the display of the natural beauties, are at least *consistent with them*. (See Hogarth's *Analysis of Beauty*, c. 6, ad fin.) Caprice or bad taste may sometimes introduce such fashions as hair-powder, pomatum, and hoops, and habit may reconcile the eye to such monstrous disguises; but it seems incredible that any person should maintain that modes of dress are in themselves indifferent, and that the powdered and plastered hair and stiff hoop of an English or French lady of the eighteenth century are intrinsically as beautiful as the loose and flowing locks and graceful drapery of a Grecian statue. New modes of dress are worn, not because they are *beautiful*, but because they are *fashionable*. Ladies not unfrequently lament that the new fashion is ugly and unbecoming, though they abandon the old fashion as being obsolete. Brilliant colours, moreover, are almost universally considered beautiful for dress, especially for female dress; and therefore they are worn by the rich, who can afford a frequent succession of clothes: the poor, who cannot, are consequently forced to clothe themselves in dark and dingy colours, which are not so soon soiled and spoilt. So likewise fine, soft, and smooth textures are not only more convenient, but more beautiful for clothing, as being better fitted to show the form of the body: in this respect the taste of all ages has agreed, from the Romans, who admired the cobweb garments, the *textilis aura*, which they imported from the East, and who bartered gold for an equal weight of silk, down to the modern purchasers of the delicate fabrics of Paisley and Lyons: and hence the rich clothe themselves in fine linen and woollen, in silk, in velvet, and in lace; while the poor, unable to purchase such luxuries, content themselves with coarser and thicker textures. Mr. Alison, therefore, in the following remarks, completely inverts the cause and the effect. 'The colours (he says) which distinguish the ordinary dress of the common people are never considered as beautiful. It is the colours only of the dress of the great, of the opulent, or of distinguished professions, which are ever considered in this light. The colours of common furniture, in the same way, are never beautiful; it is the colours only of fashionable, or costly, or magnificent furniture, which are ever considered as such.' (Alison *On Taste*, vol. i. p. 302.) In fact, however, the dress of the rich is not beautiful because it is the dress of the rich, but it is the dress of the rich because it is beautiful: costly furniture is not beautiful because it is costly, but it is costly because it is beautiful. The dress of the poor is not plain because it is the dress of the poor, but it is the dress of the poor because it is plain. In countries where the peasants ornament their dress with taste and fancy, as in some cantons of Switzerland, their dress is thought beautiful; in countries, as in antient Venice, where the upper orders wore black clothes, black might have been considered a mark of nobility and rank, but could scarcely, even by the natives, have been considered as beautiful: nor in this country does any one think a barrister's wig and gown, or a clergyman's surplice, as having any title to be called beautiful because they are the dress of distinguished professions. (See Alison, vol. i. p. 107; *Edinburgh Review*, vol. vii. p. 299.)

Variety, likewise, is a condition of the beauty of colour nearly allied to novelty. Combinations of colours, if they are not so mixed as to be confused, and if their tints harmonize well together, are for the most part agreeable to the eye: while large and unbroken masses of an uniform hue, such as long flat walls, wide expanses of sand or water, or green plain, are devoid of beauty. The beauty of the human hair arises, in great measure, from the irregularity of its movements, its flexibility and variety of outline, and the changeability of its tint, as its glossy surface reflects the light in different parts: while a bald head is not only deprived of this ornament, but also seems to be shorn of its fair proportions, and to want something which belongs to its integrity.

The most remarkable exception to the ugliness of uniform colours is the beauty of the blue sky and the blue sea; in which cases the sensual delight derived from the soft and at the same time brilliant colouring appears to compensate for its want of variety. For when the sky and sea are of a grey and dingy hue their beauty is gone, and we are then conscious of the monotonous effect produced by a large unvaried surface of a dull colour. Even, however, when the sea is most brilliant in its colour, how much do a few white sails, scudding along its surface, add not only to the interest but also to the beauty of the scene!

Some writers have thought that a certain *size* is an essential element of beauty: thus Aristotle, in his *Poetic*, says, that beauty consists in *magnitude* and *proportion*; and, therefore, a very small or a very large animal would be devoid of beauty, the former because the eye could not *distinguish*, the latter because the eye could not *comprehend* its parts[*]. This notion of Aristotle's doubtless arose from his predominant love of making the excellence of everything to consist in a mean between two extremes; but in the case which he puts the mean is the beautiful form, because it is the best suited to the nature and wants of the animal. That beauty *generally* does not depend on the size of the object which makes the impression on the sense, is proved by the admiration which we equally bestow on the delicate frame and brilliant plumage of a humming-bird, and on the vast expanse of an Alpine view. Burke, on the other hand, makes *smallness* an essential element of beauty (*Sublime and Beautiful*, part iii. § 13); but the arguments which he adduces are equally untenable, as being founded on a partial view of the subject. Among other considerations he alleges the practice of giving diminutive names to the objects of our affection; but this arises not from any sense of the connexion of beauty with smallness of size, but from the incompatibility of the passion of *love* with that of *fear*—that is, so far as fear means an anticipation of evil; for by using diminutive names, expressive of weakness and inferiority, men signify their consciousness that the persons whom they love are things in their power, of which they entertain no apprehension and do not stand in awe. [See FEAR.]

The feeling of beauty is, moreover, increased, if not awakened, by antient recollections, which spread a charm over places illustrated by the arts, the learning, and the civil and military glories of former ages. It is, however, necessary to distinguish between the quality of *beauty* and the feelings excited by *interesting* historical associations. There is no doubt that the first time that a scholar beholds Athens or Rome, he is affected far more powerfully and agreeably than a person to whom antient history is a blank. But these emotions cannot be considered as arising from the perception of beauty. It seems to us quite conceivable that a painter who did not know that Pericles or Socrates were Athenians, or that the Parthenon was the Temple of Minerva, should be as much alive to the *beauty* of the view of Athens as the historian, though his feelings would not be so strongly moved by the sight before his eyes. (See Knight *On Taste*, part 2. ch. ii. § 70-73.) This distinction between associations which give an *interest* to an object, which make us *curious* to see it, and those which make it *beautiful*, has not always been sufficiently attended to. Thus Mr. Alison cites Runnymede and the Rubicon as instances of beauty conferred or enhanced by historical associations. (Vol. i. pp. 25, 27.) But beauty never arises from such a source as this. No man would think a plain green field or an ordinary stream more beautiful than any other such field or stream, simply because King John had signed Magna Charta in the one, or Julius Cæsar raised the standard of rebellion on the banks of the other. A sincere Roman Catholic might be led into trains of the tenderest pathos and the loftiest religious enthusiasm by the sight of a fragment of the true cross, but would find no beauty in it. The iron crown of Charlemagne, or the stone on which the Scottish kings were crowned at Scone, would suggest historical recollections of deep interest, but would be devoid of beauty. The same may be said of badges of distinction, as orders, crowns, coronets, mitres, &c.: they may call up ideas of nobility, magnificence, grandeur, courage, or power; and yet they may not be beautiful. No one probably ever found any beauty in the Garter or the Cross of the Legion of Honour, however lofty or agreeable their associations may be. Feelings of this kind may make the mind susceptible to impressions of beauty, but cannot alone produce it. What can have less pretensions to beauty than a modern fortress, with its bare walls and heavy unornamented masonry? Yet it is inseparably connected with all those ideas of power, grandeur, martial prowess and courage, to which Mr. Alison in other cases refers the origin of beauty.

Having thus attempted to give a general account of the origin and causes of beauty in outward objects, we shall next consider the *state of mind* which is most favourable to the perception of it.

In the first place it may be remarked that a *certain degree of cultivation* is necessary to the perception of beauty. Savage nations appear to be nearly or quite destitute of any notion of it, in the works both of nature and art, or at least their admiration, as in children, is confined to gaudy and shining trinkets and ornaments of the person. The practice of tattooing, however, is doubtless founded on notions of beauty, more mistaken even than those which led the ladies of Europe to cover their hair with powder and pomatum. In the lower orders of civilized nations the same indifference to beauty may be generally observed, in proportion to their coarseness and ignorance. The early development of the sense of beauty among the Greeks, which is so strikingly shewn both in their mythology and poetry, and in their works of art (see *Philological Museum*, vol. ii. p. 165-166), is a proof of their early culture and of their great superiority, even in a half savage state, to the barbarous nations by which they were surrounded.

Another thing essential to the perception of beauty is *sensibility of mind*, arising from the development of the social affections, and the cultivation of the benevolent feelings. The custom, prevalent in some countries, of planting flowers on graves, and of offering nosegays to the images of saints or of the Virgin, is a mark at once of a feeling of beauty and of sensibility of mind. On the other hand, persons of a sour, phlegmatic, morose, and misanthropic temperament, are little alive to the beauty of outward objects or works of art. It was, doubtless, from a sense of the incompatibility of a feeling for beauty with absence of all social and benevolent sympathies, that Milton represents the Devil as insensible to the beauties of Paradise:

> 'The Fiend
> Saw undelighted all delight, all kind
> Of living creatures, new to sight and strange.'

As on the one hand, all the antisocial passions, as anger, jealousy, envy, fear, &c., are inconsistent with the perception of beauty; so the social passions sharpen and facilitate it, as love and pity, which, as Dryden says, 'melts the soul to love.' Hence *loveliness* in the human race is intimately connected with beauty, as the desire of sex is heightened and stimulated by the beauty of form, colour, and expression; but it is not identical with it, for lovers are often not only blind to the defects of their mistresses, but sometimes even admire them on that very account[*]: whence love is proverbially said to be blind.

A third requisite to the perception of beauty is *serenity* and *cheerfulness of mind*, and the absence of overpowering care or affliction, which engrosses the faculties and prevents them from taking pleasure in the relations of outward objects. This inconsistency is well illustrated by the reflections of Hamlet, when he is oppressed with a sense of the painful task imposed upon him by his father's spirit. (Act ii. sc. 2.) (See Alison *On Taste*, vol. i. p. 10.)

On the relation of the beauty of outward objects to the beauty of works of art, more will be said under the heads of the several arts. Here it is only necessary to observe, that of the three arts of design, viz., architecture, sculpture, and painting, the two last are purely *representative* arts, while the first alone creates objects which have a *use* beyond the mere gratification of the taste. The beauty of buildings therefore belongs to the class of objects which we have been above examining; while the beauty of pictures and statues, though closely connected with the same range of ideas, yet forms a class apart, and requires the consideration of additional elements peculiar to itself. These are derived in great measure from the capabilities of the respective arts, as dependent on the materials which they work with and the effects which they are thus able to produce. There are many objects beautiful in nature which cannot be represented with advantage by the painter or sculptor; on the other hand, there are many objects disagreeable in nature which are beautiful in a picture, because a picture is an abstraction, a representation of the colour and outline of an object, without any of those accompanying circumstances which in the reality may cause disgust to the other senses, and thus prevent the mind from enjoying that pleasure which it might otherwise derive through the organ of sight alone. Hence those things in nature which are peculiarly fitted to be subjects for a painter, are properly said to have *picturesque beauty*, as those forms and postures which would appear to most advantage in marble might, as has been truly remarked, be said to have *sculpturesque beauty*. There are certain general characteristics of these two arts, as that painting best represents expression, while sculpture best represents character; that painting embraces a vast variety of subjects, while sculpture confines itself almost exclusively to the human figure and some of the nobler animals, which may be here pointed out; but to determine the peculiar provinces of these two arts respectively requires a separate investigation, with reference not to the general subject of beauty, but to the capabilities and advantages of each, and would be materially assisted by a knowledge of those mechanical processes and mysteries of art which the professed sculptor or painter can themselves alone possess.

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[*] Τὸ γὰρ καλὸν ἐν μεγέθει καὶ τάξει ἐστί, &c., *Poet*. chap. vii.; and see Twining's translation, note 61, where several passages are cited showing the opinions of the Greeks as to the close connexion of large size and beauty. Our word *handsome*, in like manner, includes an idea of size above the ordinary standard.

[*] . . . . ἦ γὰρ ἔρωτι
Πολλάκις, ὦ Πολύφαμε, τὰ μὴ καλὰ καλὰ πέφανται.

(On the difference between painting and sculpture, see Price *On the Picturesque*, vol. ii. pref. p. xii-xiv.; Müller, *Archæol. der Kunst*, § 27; *Philological Museum*, vol. ii. pp. 95-98.)

[On the relation of the beautiful and the sublime, see the article SUBLIMITY.]

BEAUVAIS, a city in France, capital of the department of Oise, upon the little river Thérain or Terrein, at the point where it receives the Avelon, another small stream. The Thérain is a feeder of the Oise. The town is on the road from Paris to Abbeville and Calais, 41 miles N. by W. of Paris, in 49° 27′ N. lat., 2° 4′ E. long. While the old territorial division of France remained, it was included in the Ile de France, but was near the border towards Picardie.

Beauvais is a very antient town, and was known to the Romans by the name of Cæsaromagus, which was afterwards changed for that of Bellovaci, the name of the Gallic tribe whose chief town it was. The Bellovaci were distinguished among the Belgic Gauls for number, valour, and influence; and took an active part in the resistance to Julius Cæsar, when he first carried his arms into that part of the country. They agreed to contribute 60,000 men to the confederate army of natives, but the skill and perseverance of the Romans triumphed over all opposition; and the Bellovaci with their neighbours submitted to a foreign yoke. Several writers of great learning, Sanson, Scaliger, and Valois, have considered that Bratuspantium, the town into which the Bellovaci retreated with their effects on Cæsar's approach, was identical with Cæsaromagus, or Beauvais; and D'Anville himself was at first of the same opinion, though he afterwards considered the site of Bratuspantium to be in the neighbourhood of Breteuil in Picardie. (D'Anville, *Notice de l'Ancienne Gaule*; Expilly, *Dictionnaire des Gaules et de la France*.)

Beauvais is of considerable size, but ill built; the streets are tolerably wide, but the number of wooden houses presenting their gables to the street, and destitute of any regularity, gives to the place a shabby appearance. The great *place*, or square, has at one end the town hall, the front of which is adorned with Ionic pilasters. But the building which is most worthy of notice is the beautiful Gothic cathedral. The edifice is, however, imperfect, having neither nave nor steeple. The steeple was erected in the year 1564, but, within ten years after its completion, was destroyed by a tempest; and this accident prevented the completion of the church. The choir is of great beauty, and appears more lofty than that of Amiens, though not really so. It is adorned with richly painted windows, as antient as the time of Louis IX. (or St. Louis) of France. (A.D. 1226-1270.) (Mrs. C. Stothard's *Letters during a Tour in Normandy, &c.*)

Before the Revolution Beauvais had, besides its cathedral, six collegiate churches and thirteen parish churches. There were three abbeys for men; one of the Benedictines of the Congregation of St. Maur, one of the order of St. Augustin, and a third occupied first by the Benedictines, and afterwards by the Lazarists; a seminary for priests, directed by the Lazarists; seven convents for religious of both sexes, viz., four for men and three for women; a commandery of the order of Malta; two hospitals, the Hôtel Dieu and the Hôpital General. The bishops of Beauvais (who were also temporal peers, with the title of Counts of Beauvais) entered upon their bishopricks with great solemnity. The church of St. Etienne is more antient than the cathedral. The windows of this church, and especially those of the chapels which surround the choir, are of great beauty; they are of the sixteenth century. M. Malte Brun speaks of a large and fine hospital erected not long since, but whether on the foundation of either of those already mentioned is not stated. The antient episcopal palace, a Gothic edifice, has been made the seat of the prefect. The site of the old walls of the town has been converted into a promenade, but some round towers and the relicts of the wall are still standing near the river Thérain. There are a handsome theatre, a *collège*, or high school, a seminary for priests, and a public library of no great extent. (Malte Brun; Balbi; Expilly.)

Beauvais is a town of considerable note for its manufactures. There is a royal manufactory of carpets, founded by Colbert in 1664, and still in the hands of government. A certain quantity is made every year for the furnishing of the royal palaces and the public establishments, and the surplus is sold to the public. These carpets are in great repute, and fetch a high price. Woollen cloths, shawls, flannels, and coarse woollen fabrics of various kinds are made, and the washing and spinning of wool are also carried on. Linens are manufactured to a considerable extent, especially the kind called *demi-Hollande* (half-Holland), from being half the length of the Dutch linens. The linen manufacture, as carried on in the town, includes the spinning of the yarn, and the weaving and bleaching of the linens. To the foregoing articles may be added braid, and felt for the paper-makers. Printed cottons, formerly one of the staple manufactures of the town, are now made only to a small extent, but some cotton yarn is spun. The fuel consumed in these manufactories is, partly at least, peat, which is procured in great quantity at Bresles in the neighbourhood, and in several other places in the department. Within a few years courses of instruction in geometry and mechanics applied to the arts have been established with success. There is a *Tribunal de Commerce*, or committee for deciding disputes in commercial affairs. (Dupin, *Forces Productives et Commerciales de la France*.)

The population in the year 1832 was 12,867. The arrondissement of Beauvais had, at the same time, a population of 131,385, part of whom were employed in various branches of manufacturing industry. Fans, toys, glass, pottery, hosiery, ribbons are among the productions of the arrondissement, which comprehends 694 square miles, or 444,160 acres; and is subdivided into 12 cantons, and 244 communes or parishes.

Beauvais was formerly a place of great strength. It was unsuccessfully besieged by the English in 1443. Jean Lignière by his heroic valour succeeded in repulsing them. Nearly thirty years afterwards (viz., in 1472), Charles le Temeraire (the Rash), Duke of Bourgogne (Burgundy), again attacked it with an army of 80,000 men, but the valour of the inhabitants defeated the attempt. The women, under the conduct of Jeanne Laîné (called also Fourquet, or Fouquet, or Jeanne la Hachette), displayed the greatest courage in the defence of the place, and are said even to have exceeded the men. The exploits of Jeanne form the subject of a picture in the town-hall; and, in memory of this event, the women took precedence of the men in a yearly procession, which was kept up till the time of the Revolution. Beauvais has produced some persons of note, as Lenglet du Fresnoy, a considerable writer on history, geography, ecclesiastical affairs, &c.; and Philippe de Villiers de l'Ile—Adam, grand-master of the Knights of St. John of Jerusalem or Malta, distinguished by his gallant but unsuccessful defence of Rhodes against Soliman I. (the Magnificent), emperor of the Turks, in the year 1522.

The bishoprick of Beauvais was founded about the middle of the third century. It comprehends at present the department of Oise. The bishop is a suffragan of the archbishop of Reims. Several councils have been held at Beauvais. At one, held in 1114, the emperor of Germany, Henry V., was excommunicated.

The name Beauvais belongs to several other places in France of little note.

BEAUVAISIS, or **BEAUVOISIS**, in France, the district of which Beauvais was the capital. It was formerly included in Picardie, but was taken from Picardie and annexed to the Ile de France, with which it continued incorporated, till the old territorial divisions in Franc weere superseded by the departments. The conterminous districts were, on the north, the Amienois and Santerre, in the province or government of Picardie; on the south, the Vexin François and the Ile de France (taken in the most restricted sense), both in the government of the Ile de France; on the east, the Valois and the Quartier de

Noyon, both in the same government; and on the west, the Vexin Normand, in Normandie. (Maps in the *Atlas of the Encyclopédie Méthodique.*)

The Beauvaisis is watered by the Oise, which bounds it on the south-east; by the Epte, which bounds it on the west; by the Thérain, and some other streams of less importance. The air is rather cold, but healthy; the surface unequal, made up of plains and hills, fertile in corn, but producing little wine. There is no want of wood, and the pasturage is abundant. A considerable number of sheep are fed, and the butter and cheese made here are in great request. There is plenty of game, poultry, and fish. Flax and hemp are grown in great quantity. We have seen [see BEAUVAIS] that the linen manufacture is one important branch of industry at Beauvais. There are some mineral springs. The principal places in Beauvaisis are, Beauvais, the capital (population in 1832, 12,867), and Clermont (population in 1832, 2715 for the commune, 2594 for the town itself), on a small feeder of the Oise, east by south of Beauvais.

BEAUVOIS, AMBROSE MARIA FRANCIS JOSEPH PALISOT DE, a celebrated French naturalist and traveller, was born at Arras on the 27th of July, 1752. His father, who was an advocate, educated him for the legal profession, but his bias for the study of natural history was so strong that from an early age he was more frequently in the fields with his friend and preceptor Lestiboudois than in the courts of law. In the year 1772 he was appointed receiver-general of crown rents, which he held for about five years. Upon the suppression of this office in 1777, he appears to have abandoned his profession, and to have determined upon devoting himself exclusively to his favourite pursuits. The French government had planned an expedition to the west coast of Africa, for the purpose of founding a settlement which might serve as a counterpoise to the mercantile influence of the English in that part of the world. Palisot de Beauvois eagerly embraced what appeared a favourable means of exploring a country rich in every branch of natural history, and never before trod by the foot of an European naturalist: without regarding the extreme insalubrity of a climate from which scarcely more than one European in four ever returns, he obtained permission to accompany the expedition at his own charge. On the 17th July, 1786, he sailed from Rochefort for Benin, in which, and the neighbouring kingdom of Oware, he spent about fifteen months, investigating its natural productions with a zeal that even the dreadful fevers of the country, with which he was attacked, were insufficient to destroy. While here, he planned a journey across Africa to Abyssinia; but after having penetrated the interior for a considerable distance, he was compelled to return in consequence of the timidity (prudence?) of his companions, who were frightened at the dangers of the route, and at the multiplying difficulties by which they found themselves opposed at every step. On his return to the coast, he was attacked so severely by scurvy and yellow fever, that, to use his own words, after seeing more than five-sixths of his companions perish, and having been himself several times in the very jaws of death, it became indispensable for him to abandon the country, leaving behind him the principal part of his collection, which consisted of skins of animals, insects, dried plants, and minerals, to be forwarded to France. Fortunately a part of these had previously been sent to M. de Jussieu, and a part was put on board the ship in which he embarked for St. Domingo, otherwise the whole fruit of so much zeal and suffering would have perished; for what he left behind him was soon after burned, along with the settlement, by an English expedition. Upon his arrival at Cape François in St. Domingo, in 1788, his health became speedily re-established. Here having an opportunity of witnessing the practical working of the slave system, he formed an opinion so decidedly adverse to emancipation, that to his latest hour he continued to oppose the granting of freedom to the negroes, except under very strict conditions, and after the lapse of a considerable number of years, during which they might be gradually prepared to make a proper use of their liberty. He seems to have been always extremely tender of the interests of the colonists, from whom indeed he had received the greatest kindness during his residence in the island. When it was found impossible any longer to keep the blacks in subjection, M. de Beauvois was deputed by the French authorities of St. Domingo to proceed to the United States, in the hope of obtaining assistance from the American government. Upon his return from this fruitless mission in 1793, he found the island in confusion; his collections, which had become very large, were consumed in the conflagration of Cape François; and the negroes, now become the masters, who naturally saw nothing in him but a persecutor, threw him into prison.

While lying in prison, in daily expectation of being taken out for execution, he was enabled to escape by the faithfulness of a mulatto woman, to whom, some time before his departure for the United States, he had humanely granted her freedom: she not only effected his liberation, but procured him the means of reaching the United States. Thus was his life preserved by the devotion of one of that very race which he thought worthy of little short of eternal bondage. On his arrival at Philadelphia, penniless and friendless, he learned that his name had been inserted in the lists of proscriptions, and that it was no longer safe to return to France. One of the great traits in De Beauvois' character was his unconquerable perseverance, and an elasticity of spirit which no misfortunes could destroy. Undismayed at his apparently hopeless condition, he bethought him of accomplishments which in his happier days had made him the delight of his friends, but which he had never dreamed might be the only resource for procuring a morsel of bread. By the teaching of music and languages he supported himself honourably; and soon succeeded in attracting the notice of the few persons who at that time, in North America, occupied themselves with natural history.

Upon the arrival in the United States of the French Minister Adet, De Beauvois no longer found himself straitened for means. He forthwith abandoned his occupations, and determined upon exploring the more remote parts of North America. He accordingly examined the Appalachian Mountains, and penetrated into the country of the Creek and Cherokee Indians, still collecting objects of natural history in all its branches. Among other things he discovered the jaws and molar teeth of the great mastodon on the banks of the Ohio, and he brought the tooth of a megalonyx from the west of Virginia. Upon his return to Philadelphia loaded with acquisitions, he learned that his proscription had been erased, and that, by singular good fortune, his patrimony had not been sold. He immediately repaired to France, where he found his affairs in lamentable disorder, and his wife unfaithful. He divorced his wife, sold a portion of his property in order to free the remainder from incumbrances, renounced the perils of travelling, and thenceforward devoted himself to the examination and publication of his collections. But of these he found only a miserable wreck. The English in Benin, and the negroes at Cape François, had destroyed everything; he had only what he brought with him from Philadelphia, and the small collections which he had forwarded while in Africa to M. de Jussieu. These, however, sufficed to occupy him, in conjunction with general questions of natural history, for the remainder of his life. In 1806 he was called to the Institute as the successor of Adanson; in 1815 he was created titular councillor of the University of Paris by Napoleon, upon his return from Elba; and in January, 1820, he died from an attack of diarrhœa.

After his return to France, Palisot de Beauvois was the author of a considerable number of works, some of which were inserted in the transactions of learned societies, some in the *Encyclopédie Méthodique*, and the remainder were published separately. All these, except his *Æthéogamie*, may be supposed to have contributed more or less to the progress of science; but the works on which his reputation chiefly depend are his *Flore d'Oware* and *de Benin*, published in twenty parts, in folio, between 1804 and 1821; his *Insects* of the same country, of which fifteen parts in folio appeared between 1805 and 1821; and his *Agrostographie*, which appeared in one volume 8vo. in 1812. In the *Flora* of Oware are several extremely curious plants, especially one called after the author *Belvisia;* and the work abounds in good observations, showing De Beauvois to have been well versed in some of the more difficult parts of botany. It is scarcely fair in an English biographer to say that the book is extremely meagre in species, considering that the bulk of what he had collected for it was destroyed by our own countrymen, in their zeal for crippling the resources of France by the destruction of the property of peaceable French subjects: or to complain that it affords no general view of the vegetation of this still unknown and most interesting country; for the work itself was not completed when the author died. Whatever defects may be found in the *Flora* of Oware was more than compensated by the merits of the *Agrostographie*. At the time of its publication all that related to the systematic arrangement of grasses was in great disorder. The genera of this important natural order, with the exception of what had been done by Dr. Robert Brown in his *Prodromus Floræ Novæ Hollandiæ* (and this had been well done), were nearly as they had been left by Linnæus, although the number of species had prodigiously increased. It was necessary to recast the whole order; in doing which new principles had to be established, and antient prejudices to be unsparingly attacked. This was done by Palisot de Beauvois in a manner which reflected the greatest honour both upon his skill and knowledge. It is true that men like Smith, and those of his retrogressive school, cried out at the innovations of this bold reformer, and were amazed at the unceremonious manner with which what they had imagined imperishable was assailed: all their criticisms, protests, sneers, and anathemas were in vain; the public accepted the new arrangement, and it has become the basis of the more perfect system, which at this day seems to be everywhere recognized as the most conformable to reason and to nature.

If Palisot de Beauvois cannot be said to have been one of the great luminaries which cast a light over the whole extent of science, he certainly deserves the praise of having been a sensible, well-informed, and skilful naturalist, who did well what he undertook, and a most zealous and intrepid traveller, whom neither danger nor difficulty could deter. He was handsome in person, gentlemanly in deportment, mild in manner, and indefatigable in his labours, and he deserves to be recorded as one of those who have the most contributed to the progress of natural science in these latter days.

His biography, strictly speaking, ought to have been given under Palisot; but we are unwilling to separate it too widely from the genus (Belvisia) which has been so named to commemorate his merits.

(*Biographie Universelle*; *Flore d'Oware*; and *Essai d'une Nouvelle Agrostographie*.)

BEAVER (Zoology), the English name for the genus *Castor* (Cuv.), one of the order of rodent or gnawing animals (*Rodentia*, Cuv., *Glires*, Linn.), with two incisor, or cutting teeth, and eight molars in each jaw, twenty in all; and particularly distinguished from all the rest of that order by a broad, horizontally flattened tail, which is nearly oval and covered with scales. There are five toes on each of the feet, but those of the hinder ones only are webbed, the webs extending beyond the roots of the nails. The second toe of these last is furnished with a double nail, or rather with two, one like those of the other toes, and another beneath it, situated obliquely with a sharp edge directed downwards. There is also, as Dr. Richardson observes, a less perfect double nail on the inner toe of the hind feet.

The incisor teeth of the beaver are broad, flattened, and protected anteriorly by a coat of very hard orange-coloured enamel, the rest of the tooth being of a comparatively soft substance, whereby a cutting, chisel-like edge is obtained; and, indeed, no edge tool, with all its combination of hard and soft metal, could answer the purpose better. In fact, the beaver's incisor tooth is fashioned much upon the same principle as that followed by the tool-maker, who forms a cutting instrument by a skilful adaptation of hard and soft materials till he produces a good edge.

But the natural instrument has one great advantage over the artificial tool; for the former is so organized that, as fast as it is worn away by use, a reproduction and protrusion from the base takes place, and thus the two pair of chisel-teeth working opposite to each other are always kept in good repair, with their edges at the proper cutting angle. When injury or disease destroys one of these incisors, its antagonist, meeting with no check to resist the protrusion from behind, is pushed forward into a monstrous elongation. So hard is the enamel, and so good a cutting instrument is the incisor tooth of the beaver, that, when fixed in a wooden handle, it was, according to Dr. Richardson, used by the Northern Indians to cut bone, and fashion their horn-tipped spears, &c., till it was superseded by the introduction of iron, when the beaver-tooth was supplanted by the English file.

The power of these natural tools is well described by Lewis and Clarke, who saw their effects on the banks of the Missouri. 'The ravages of the beaver,' say they, 'are very apparent: in one place the timber was entirely prostrated for a space of three acres in front on the river and one in depth, and great part of it removed, although the trees were in large quantities, and some of them as thick as the body of a man.'

Dr. Richardson thus speaks of this part of their operations: 'When the beaver cuts down a tree it gnaws it all round, cutting it however somewhat higher on the one side than the other, by which the direction of its fall is determined. The stump is conical, and of such a height as a beaver, sitting on his hind quarters could make. The largest tree I observed cut down by them, was about the thickness of a man's thigh (that is, six or seven inches in diameter), but Mr. Graham says, that he has seen them cut a tree which was ten inches in diameter.' The beavers have no canine teeth. F. Cuvier once thought that the molars had no true roots, but that they were increased from their bases like the incisors. The source of his error was a skull in which the molars were not entirely developed; but he has since admitted that they have roots, and that they are incapable of additional growth when once entirely formed.

American Beaver.

[Castor Fiber.]

The American Beaver, *Castor Fiber* of Linnæus, *Castor Americanus* of F. Cuvier, *Ammisk* of the Cree Indians, and *Tsoutayè* of the Hurons, is the animal of whose sagacity, and even social polity, such wonderful tales have been told. It has been represented as an accomplished architect, gifted by Nature with a head to design and instruments to execute well-planned houses containing chambers, each set apart for its appropriate purpose. The lovers of the marvellous, when they had once given the reins to their imagination, soon converted its tail into a sledge and a trowel, and astonished the world with an elaborate account of the mode in which the plaster was laid on with this, according to them, masonic implement: nay, they even turned it into an instrument of office. With it the overseers (such officers, according to the accounts given of their civil institutions, it was the custom of the community of beavers to appoint) were said to give the signal to the labourers whose employments they superintended, by slapping it on the surface of the water. All this, and more than this has faded away before the light of truth. Their houses have sunk into rude huts, in the construction of which their tails are never used, their pile-driving (for, among other feats, they were said to drive stakes of the thickness of a man's leg three or four feet deep into the ground) has turned out to be a mere fable, and their polity has proved to be nothing more than a combination of individuals, such as we see among many of the inferior animals, impelled by an instinct common to all to perform a task in the benefit of which all participate.

But, after discarding all exaggerations, there remains enough to make the works actually carried on by these animals a subject of deep interest, as we shall presently see.

Where there has been so much fable it becomes of importance to select that account of the habits of the beaver which accords with fact. Such an account, from the testimony of those best informed on the subject, is to be found in Hearne; and as Dr. Richardson, who had the best op portunities for forming a right judgment, has given it the preference, we proceed to lay it before our readers in Hearne's own simple language :—

'The beaver being so plentiful, the attention of my companions was chiefly engaged on them, as they not only furnished delicious food, but their skins proved a valuable acquisition, being a principal article of trade as well as a serviceable one for clothing. The situation of the beaver-houses is various. Where the beavers are numerous they are found to inhabit lakes, ponds, and rivers, as well as those narrow creeks which connect the numerous lakes with which this country abounds: but the two latter are generally chosen by them when the depth of water and other circumstances are suitable, as they have then the advantage of a current to convey wood and other necessaries to their habitations, and because, in general, they are more difficult to be taken than those that are built in standing water. They always choose those parts that have such a depth of water as will resist the frost in winter, and prevent it from freezing to the bottom. The beavers that build their houses in small rivers, or creeks, in which water is liable to be drained off when the back supplies are dried up by the frost, are wonderfully taught by instinct to provide against that evil by making a dam quite across the river, at a convenient distance from their houses. The beaver-dams differ in shape according to the nature of the place in which they are built. If the water in the river, or creek, have but little motion, the dam is almost straight; but when the current is more rapid, it is always made with a considerable curve, convex toward the stream. The materials made use of are drift-wood, green willows, birch, and poplars if they can be got; also, mud and stones intermixed in such a manner as must evidently contribute to the strength of the dam: but there is no other order or method observed in the dams, except that of the work being carried on with a regular sweep, and all the parts being made of equal strength. In places which have been long frequented by beavers undisturbed, their dams, by frequent repairing, become a solid bank, capable of resisting a great force both of water and ice; and as the willow, poplar, and birch generally take root and shoot up, they by degrees form a kind of regular planted hedge, which I have seen in some places so tall that birds have built their nests among the branches.

'The beaver-houses are built of the same materials as their dams, and are always proportioned in size to the number of inhabitants, which seldom exceeds four old and six or eight young ones; though, by chance, I have seen above double the number. Instead of order or regulation being observed in rearing their houses, they are of a much ruder structure than their dams; for, notwithstanding the sagacity of these animals, it has never been observed that they aim at any other convenience in their houses than to have a dry place to lie on; and there they usually eat their victuals, which they occasionally take out of the water. It frequently happens that some of the large houses are found to have one or more partitions, if they deserve that appellation, but it is no more than a part of the main building left by the sagacity of the beaver to support the roof. On such occasions it is common for those different apartments, as some are pleased to call them, to have no communication with each other but by water; so that, in fact, they may be called double or treble houses, rather than different apartments of the same house. I have seen a large beaver-house built in a small island that had near a dozen apartments under one roof; and, two or three of these only excepted, none of them had any communication with each other but by water. As there were beavers enough to inhabit each apartment, it is more than probable that each family knew their own, and always entered at their own doors, without any further connexion with their neighbours than a friendly intercourse, and to join their united labours in erecting their separate habitations, and building their dams where required. Travellers who assert that the beavers have two doors to their houses, one on the land side and the other next the water, seem to be less acquainted with these animals than others who assign them an elegant suite of apartments. Such a construction would render their houses of no use, either to protect them from their enemies, or guard them against the extreme cold of winter.

'So far are the beavers from driving stakes into the ground when building their houses, that they lay most of the wood crosswise, and nearly horizontal, and without any other order than that of leaving a hollow or cavity in the middle. When any unnecessary branches project inward they cut them off with their teeth, and throw them in among the rest, to prevent the mud from falling through the roof. It is a mistaken notion that the wood-work is first completed and then plastered; for the whole of their houses, as well as their dams, are, from the foundation, one mass of mud and wood mixed with stones, if they can be procured. The mud is always taken from the edge of the bank, or the bottom of the creek or pond near the door of the house; and though their fore paws are so small, yet it is held close up between them under their throat: thus they carry both mud and stones, while they always drag the wood with their teeth. All their work is executed in the night, and they are so expeditious that, in the course of one night, I have known them to have collected as much as amounted to some thousands of their little handsful. It is a great piece of policy in these animals to cover the outside of their houses every fall with fresh mud, and as late as possible in the autumn, even when the frost becomes pretty severe, as by this means it soon freezes as hard as a stone, and prevents their common enemy, the wolverene, from disturbing them during the winter; and as they are frequently seen to walk over their work, and sometimes to give a flap with their tail, particularly when plunging into the water, this has, without doubt, given rise to the vulgar opinion that they used their tails as a trowel, with which they plaster their houses; whereas that flapping of the tail is no more than a custom which they always preserve, even when they become tame and domestic, and more particularly so when they are startled.

'Their food consists of a large root, something resembling a cabbage-stalk,* which grows at the bottom of the lakes and rivers. They also eat the bark of trees, particularly those of the poplar, birch, and willow; but the ice preventing them from getting to the land in the winter, they have not any barks to feed on in that season, except that of such sticks as they cut down in summer, and throw into the water opposite the doors of their houses; and as they generally eat a great deal, the roots above-mentioned constitute a principal part of their food during the winter. In summer they vary their diet, by eating various kinds of herbage, and such berries as grow near their haunts during that season. When the ice breaks up in the spring the beavers always leave their houses, and rove about until a little before the fall of the leaf, when they return again to their old habitations, and lay in their winter stock of wood. They seldom begin to repair their houses till the frost commences, and never finish the outer coat till the cold is pretty severe, as hath been already mentioned. When they erect a new habitation they begin felling the wood early in the summer, but seldom begin to build until the middle or latter end of August, and never complete it till the cold weather be set in.

'Persons who attempt to take beaver in winter should be thoroughly acquainted with their manner of life, otherwise they will have endless trouble to effect their purpose, because they have always a number of holes in the banks, which serve them as places of retreat when any injury is offered to their houses, and in general it is in those holes that they are taken. When the beavers which are situated in a small river or creek are to be taken, the Indians sometimes find it necessary to stake the river across, to prevent them from passing; after which they endeavour to find out all their holes or places of retreat in the banks. This requires much practice and experience to accomplish, and is performed in the following manner:—every man being furnished with an ice-chisel, lashes it to the end of a small staff about four or five feet long; he then walks along the edge of the banks, and keeps knocking his chisel against the ice. Those who are acquainted with that kind of work well know by the sound of the ice when they are opposite to any of the beavers' holes or vaults. As soon as they suspect any, they cut a hole through the ice big enough to admit an old beaver, and in this manner proceed till they have found out all their places of retreat, or at least as many of them as possible. While the principal men are thus employed, some of the understrappers and the women are busy in breaking open the house, which at times is no easy task, for I have frequently known these houses to be five or six feet thick, and one, in particular, was more than eight feet thick in the crown. When the beavers find that their habitations are invaded, they fly to their holes in the banks for shelter; and on being perceived by the Indians, which is easily done by attending to the motion of the water, they block up the entrance with stakes of wood, and then haul the beaver out of its hole, either by hand, if they can reach it, or with a large hook made for that purpose, which is fastened to the end of a long stick. In this kind of hunting, every man has the sole right to all the beavers caught by him in the holes or vaults; and as this is a constant rule, each person takes care to mark such as he discovers by sticking up a branch of a tree, by which he may know them. All that are caught in the house are the property of the person who finds it. The beaver is an animal which cannot keep under water long at a time, so that when their houses are broke open, and all their places of retreat discovered, they have but one choice left, as it may be called, either to be taken in their house or their vaults; in general they prefer the latter, for where there is one beaver caught in the house, many thousands are taken in the vaults in the banks. Sometimes they are caught in nets, and in summer very frequently in traps.

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* *Nuphar luteum*, according to Dr. Richardson; a kind of water-lily.

'In respect to the beaver dunging in their houses, as some persons assert, it is quite wrong, as they always plunge into water to do it. I am the better enabled to make this assertion from having kept several of them till they became so domesticated as to answer to their name and follow those to whom they were accustomed in the same manner as a dog would do, and they were as much pleased at being fondled as any animal I ever saw. In cold weather they were kept in my own sitting-room, where they were the constant companions of the Indian women and children, and were so fond of their company that when the Indians were absent for any considerable time, the beaver discovered great signs of uneasiness, and on their return showed equal marks of pleasure by fondling on them, crawling into their laps, lying on their backs, sitting erect like a squirrel, and behaving like children who see their parents but seldom. In general, during the winter, they lived on the same food as the women did, and were remarkably fond of rice and plum-pudding; they would eat partridges and fresh venison very freely, but I never tried them with fish, though I have heard they will at times prey on them. In fact there are few graminivorous animals that may not be brought to be carnivorous.'

Having thus presented the reader with a narrative of the habits of the American beaver in a state of nature principally, we now proceed to give one descriptive of its manners in captivity. The account is from the pen of Mr. Broderip, whose pet the beaver was, and is interesting inasmuch as the faculties displayed by the animal must, from its extreme youth, have proceeded from unassisted instinct.

'The animal,' says Broderip, 'arrived in this country in the winter of 1825, very young, being small and woolly, and without the covering of long hair which marks the adult beaver. It was the sole survivor of five or six which were shipped at the same time, and it was in a very pitiable condition. Good treatment quickly restored it to health, and kindness soon made it familiar. When called by its name, 'Binny,' it generally answered with a little cry, and came to its owner. The hearth-rug was its favourite haunt, and thereon it would lie stretched out, sometimes on its back, sometimes on its side, and sometimes flat on its belly, but always near its master. The building instinct showed itself immediately it was let out of its cage, and materials were placed in its way, and this before it had been a week in its new quarters. Its strength, even before it was half-grown, was great. It would drag along a large sweeping-brush, or a warming-pan, grasping the handle with its teeth so that the load came over its shoulder, and advancing in an oblique direction till it arrived at the point where it wished to place it. The long and large materials were always taken first, and two of the longest were generally laid crosswise, with one of the ends of each touching the wall, and the other ends projecting out into the room. The area formed by the cross brushes and the wall he would fill up with hand-brushes, rush baskets, books, boots, sticks, cloths, dried turf, or any thing portable. As the work grew high, he supported himself on his tail, which propped him up admirably, and he would often, after laying on one of his building materials, sit up over against it, appearing to consider his work, or, as the country people say, 'judge it.' This pause was sometimes followed by changing the position of the material 'judged,' and sometimes it was left in its place. After he had piled up his materials in one part of the room (for he generally chose the same place), he proceeded to wall up the space between the feet of a chest of drawers which stood at a little distance from it, high enough on its legs to make the bottom a roof for him, using for this purpose dried turf and sticks, which he laid very even, and filling up the interstices with bits of coal, hay, cloth, or any thing he could pick up. This last place he seemed to appropriate for his dwelling; the former work seemed to be intended for a dam. When he had walled up the space between the feet of the chest of drawers, he proceeded to carry in sticks, cloths, hay, cotton, and to make a nest; and when he had done he would sit up under the drawers and comb himself with the nails of his hind feet. In this operation, that which appeared at first a mal-formation was shown to be a beautiful adaptation to the necessities of the animal. The huge, webbed, hind feet of the beaver turn in so as to give the appearance of deformity; but if the toes were straight instead of being incurved, the animal could not use them for the purpose of keeping its fur in order and cleansing it from dirt and moisture.

'Binny generally carried small and light articles between his right fore-leg and his chin, walking on the other three legs; and large masses, which he could not grasp readily with his teeth, he pushed forwards leaning against them with his right fore-paw and his chin. He never carried any thing on his tail, which he liked to dip in water, but he was not fond of plunging in the whole of his body. If his tail was kept moist he never cared to drink; but if it was kept dry it became hot, and the animal appeared distressed and would drink a great deal. It is not impossible that the tail may have the power of absorbing water, like the skin of frogs, though it must be owned that the scaly integument which invests that member has not much of the character which generally belongs to absorbing surfaces.

'Bread, and bread and milk and sugar, formed the principal part of Binny's food; but he was very fond of succulent fruits and roots. He was a most entertaining creature, and some highly comic scenes occurred between the worthy but slow beaver and a light and airy macauco that was kept in the same apartment.' This narrative, with some additions, appeared in *The Gardens and Menagerie of the Zoological Society*, to whose editor it was given by the author. The work is full of useful and interesting information, and the cuts are beautifully executed.

Little need be said of the value of the fur of the beaver in commerce, a value greatly heightened by the proclamation of Charles I. in 1638, expressly prohibiting the use of any materials except beaver-stuff or beaver-wool in the manufacture of hats, and forbidding the making of the hats called 'demi-castors,' unless for exportation. This proclamation was an almost exterminating death-warrant to the poor beavers. They were speedily swept away from the more southern colonies, and the traffic became, for the most part, confined to Canada and Hudson's Bay. The havoc made among them, even at that period, may be imagined by an inspection of the imports of 1743. In that year the Hudson's Bay Company offered for sale 26,750 beaver-skins, and, in the same year, 127,080 were imported into Rochelle. These, it will be remembered, are only the legal returns, making no allowance for smuggling. In 1788 upwards of 170,000 were exported from Canada, and in 1808 126,927 were sent from Quebec alone to this country. The value of these last has been estimated at 118,994*l.* 1*s.* 3*d.* sterling, at an average of 18*s.* 9*d.* for each skin. These numbers, as might be expected, could not be kept up without total extermination; and we find, accordingly, that in 1827 the importation into London from a fur country of more than four times the extent of that which was occupied in 1743 (as Dr. Richardson has observed) was but little beyond 50,000. *When the reader looks at this statement, and considers the* population of London alone, he will probably inquire of what materials beaver-hats are made, so totally inadequate to its wants must such an importation be, allowing for the most complete adulteration. There is, however, another rodent animal *Myopotamus Bonariensis* (*Mus Coypus*, Gm.) [see COYPU] now (spring of 1835) to be seen in the gardens of the Zoological Society in the Regent's Park, whose skins, under the name of Neutria skins, are imported in great numbers from South America for the purpose of hat-making; nor are they the only animals that contribute to the manufacture of the so-called beaver hats.

Such a reduction as that above stated appears to have startled the Hudson's Bay Company, who took measures for insuring an adequate supply of beaver fur. But notwithstanding their endeavours, and the care of the Iroquois, the greatest beaver takers, who, according to Dr. Richardson, only trench the beaver dams of a particular quarter once in five years, and always leave a pair at least in a dam to breed, it is not likely that these animals can ever be so plentiful as they were formerly. The same author observes that the Indians farther north, when they break up a beaver lodge, destroy as far as they are able both young and old.

In 1829 there was an increase; for in that year 72,199 beaver skins were imported from the British North American colonies, and 4200 from the United States.

The earliest notice of the European beaver (κάστωρ) is in Herodotus (book iv. c. 109), who describes it as inhabiting a large lake in the country of the Budini, a nation whom he places on the east side of the upper Don (iv. 21). He says that the skin was used for clothing, and the testicles (of which we shall presently speak again) for affections of the womb. Aristotle (book viii. c. 5) mentions the European beaver under the name of κάστωρ (castor), but only mentions it; while Pliny (book viii. c. 30 and xxxii. c. 3, &c.) well describes it, and is diffuse on the subject of the celebrated castoreum, so much valued as a medicine among the antients, and which long held a high place in the materia medica of the moderns, causing the persecution of this unfortunate animal before its fur became an object of traffic. Pliny is very sage in pointing out the frauds of dealers, and shows thereby that he did not know what the castoreum really was. 'Castorea testes eorum,' writes Pliny (book xxxii. c. 3), and the antients inform us that the animal used to bite off the part (the testicles) when hunted, well knowing that with the possession of the desired castorea the persecution would cease. The only objection to this tale, which however absurd is gravely stated by Pliny himself (book viii. c. 30), though he afterwards (book xxxii. c. 3) says that Sextius, who appears to have known something of the anatomy of the animal, denies it, is, that from the organization of the animal such a distressing feat is all but impossible; and we should not deem the absurdity worthy of notice did we not daily see attempts to revive old fables, and the success which not unfrequently follows, for a time at least, such attempts. Cuvier gives the following account of the organs which secrete this substance:—'De grosses poches glanduleuses qui aboutissent à leur prépuce, produisent une pommade d'une odeur forte, employée en médicine sous le nom de castoreum.' Dr. Richardson thus speaks of this substance: 'I have not had an opportunity of dissecting a beaver, but I was informed by the hunters that both males and females are furnished with one pair of little bags containing *castoreum*, and also with a second pair of smaller ones betwixt the former and the anus, which are filled with a white fatty matter, of the consistence of butter and exhaling a strong odour. This latter substance is not an article of trade; but the Indians occasionally eat it, and also mingle a little with their tobacco when they smoke. I did not learn the purpose that this secretion is destined to serve in the economy of the animal; but from the circumstance of small ponds when inhabited by beavers being tainted with its peculiar odour, it seems probable that it affords a dressing to the fur of these aquatic animals. The *castoreum* in its recent state has an orange-colour, which deepens, as it dries into bright reddish-brown. During the drying, which is allowed to go on in the shade, a gummy matter exudes through the sack, which the Indians delight in eating. The male and female *castoreum* is of the same value, ten pairs of bags of either kind being reckoned to an Indian as equal to one beaver skin. The *castoreum* is never adulterated in the fur countries.' As the animal alluded to by Herodotus, Aristotle, and Pliny was of course the European beaver, this part of the article might perhaps have been looked for under the European section; but, as will be seen from the foregoing quotation, the subject is so intimately blended with the history of the American beavers, that it has been thought advisable to give it the place which it now occupies[*].

Dr. Richardson, who says that the call of the beaver in the pairing season is a kind of groan, gives the following as the dimensions of a full grown beaver killed at Great Slave Lake, and now in the museum of the Zoological Society:—

	Inches.	Lines.
Length of head and body . .	40	0
„ head alone . .	7	3
„ tail, scaly part . .	11	6
Distance from tip of nose to anterior part of eye . . .	2	10
Distance from the posterior part of the orbit to anterior part of the ear	2	5

He also gives the following account of the flesh, which, as much has been said of its delicacy as food, is interesting. 'The flesh of the beaver is much prized by the Indians and Canadian voyagers, especially when it is roasted in the skin, after the hair has been singed off. In some districts it requires all the influence of the fur trader to restrain the hunters from sacrificing a considerable quantity of beaver fur every year to secure the enjoyment of this luxury; and Indians of note have generally one or two feasts in a season, wherein a roasted beaver is the prime dish. It resembles pork in its flavour, but the lean is dark-coloured, the fat oily, and it requires a strong stomach to sustain a full meal of it. The tail, which is considered a great luxury, consists of a gristly kind of fat, as rich but not so nauseating as the fat of the body.'

Pennant says that the geographical range of the American beaver commences in latitude 60° or about the River of Seals, in Hudson's Bay, and terminates in latitude 30° in Louisiana; but Say places their limit at the confluence of the Ohio and Mississippi, about seven degrees further to the northward of Pennant's southern boundary. Dr. Richardson observes that their most northern point is probably on the banks of the Mackenzie (the largest American river that falls into the Polar sea, and the best wooded, owing to the quantity of alluvial soil by which it is bordered), as high as 67½° or 68° lat.; and that they extend east and west from one side of the continent to the other, with the exception of the barren districts. He further states that they are pretty numerous to the northward of Fort Franklin, and that, from the swampy and impracticable nature of the country, they are not likely to be soon eradicated from thence.

The following are the varieties of the American beaver:—

Var. α. *Nigra, the black beaver.*—Hearne says that these are more plentiful at Churchill than at any other factory in the bay, but that it is rare to get more than twelve or fifteen of their skins in one year's trade.

Var. β. *Varia, the spotted beaver.*—Dr. Richardson did not see one of these, and Say records that an Indian during his whole life caught but three. They had a large white spot on their breasts.

Var. γ. *Alba, the white beaver.*—Hearne saw but one of these albinos in twenty years, and that had many reddish and brown hairs along the ridge of the back, though its sides and belly were of a silvery white. Dr. Richardson says that when the Indians find an individual of this kind they convert the skin into a medicine bag and are very unwilling to dispose of it: there is also a yellowish variety.

The little beaver, as it is sometimes called, *Castor Zibethicus* of Linnæus, *Fiber Zibethicus* of Cuvier, *Ondatra* of Lacépède, the *Musk-rat* of Canada, and *Musquash* of the Cree Indians, is an animal generically different from the true beaver. [See MUSQUASH.]

EUROPEAN BEAVER.

F. Cuvier has pointed out some slight differences in the skulls of the European and American beavers which he had examined, for the purpose of showing that they are distinct, but, in our opinion, not conclusively. Baron Cuvier, in the last edition of his *Règne Animal*, expresses his uncertainty, notwithstanding scrupulous comparison, whether the beavers which live in burrows along the banks of the Rhone, the Danube, the Weser, and other rivers, are specifically different from those of America, or whether their vicinity to man is the cause that hinders them from building. He does not appear to have been aware of the colony described by M. de Meyerinck in the *Transactions of the Berlin Natural History Society* for 1829, as having been settled for more than a century on the small river Nuthe, a short distance above its confluence with the Elbe in a lonely canton of the Magdeburg district. This little association, it appears, amounted in 1822 to fifteen or twenty individuals only; but they were co-operative and industrious beyond what might have been expected from their numbers. Burrows of thirty or forty paces in length on a level with the river, having one opening beneath the surface and another on land; huts eight or ten feet high, formed of branches and trunks of trees laid irregularly and covered with earth; and a dyke of the same materials, so well wrought that it raised the water more than a foot, were the results of the persevering and ingenious labours of the little band. M. de Meyerinck, indeed, who seems to have had his ideas raised by the marvellous accounts of the architectural habits of the American species, asserts that his colony differed from them in many particulars; but, upon reading his memoir, and comparing it with the unvarnished account of those who have most truly related the habits of the American beavers, we think that these Europeans, considering their numbers and the materials within their reach, will be found not a whit behind their Transatlantic brethren.

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[*] In Landt's description of the Feroe Islands is the following account of a somewhat extraordinary application of this drug, under the head of 'Balæna Mysticetus' (common or Greenland whale):—'The Feroese fishermen entertain a great dread of these and other large whales, as they would easily overset their boats and dash them in pieces. In order to drive away these unwelcome guests, they fix a piece of castoreum to the fork on which they wind up their fishing-lines, and it is very remarkable, that when this fork, with the castoreum adhering to it, is placed in the water before the boat, the whales plunge immediately to the bottom and are never more seen. Oil of Juniper is employed for the same purpose.'

In truth, the American beaver near the settlements is sad and solitary; his works have been swept away, his association broken up, and he burrows like the European. Such beavers are called *terriers.* Pennant indeed mentions them as a variety which wants either the sagacity or the industry of others; but he is much nearer the truth when he says, in the same paragraph, 'beavers which escape the destruction of a community are supposed often to become *terriers.*' We have read somewhere (in Henry's *Travels*, we believe) that these solitaries are also called 'old bachelors.'

If an additional proof of the sagacity of the European beaver be required, we call the attention of our readers to the following anecdote related by Geoffroy St. Hilaire in the twelfth vol. of the *Mémoires du Muséum d'Histoire Naturelle.* One of these beavers from the Rhone was confined in the Paris menagerie. Fresh branches were regularly put into his cage, together with his food, consisting of legumes, fruits, &c., to amuse him during the night and minister to his gnawing propensity. He had only litter to shield him from the frost, and the door of his cage closed badly. One bitter winter night it snowed and the snow had collected in one corner. These were all his materials, and the poor beaver disposed of them to secure himself from the nipping air. The branches he interwove between the bars of his cage, precisely as a basket-maker would have done. In the intervals he placed his litter, his carrots, his apples, his all, fashioning each with his teeth so as to fit them to the spaces to be filled. To stop the interstices he covered the whole with snow, which froze in the night, and in the morning it was found that he had thus built a wall which occupied two-thirds of the doorway.

Upon the whole evidence, we are of opinion that the American and European beaver are only varieties of the same species.

That the beaver was formerly an inhabitant of the British islands there is no doubt. Giraldus Cambrensis gives a short account of their manners in Wales; but, even in his time (he travelled there in 1188), they were only found on the river Teify. 'Two or three waters in that principality,' says Pennant, 'still bear the name of *Llyn yr afangc*, or the beaver lake. * * * I have seen two of their supposed haunts; one in the stream that runs through *Nant Francon*, the other in the river *Conwy*, a few miles above *Llanrwst;* and both places, in all probability, had formerly been crossed by beaver dams. But we imagine they must have been very scarce even in earlier times. By the laws of *Howel dda*, the price of a beaver's skin, *Croen Llostlydan* (broad-tailed animal), was fixed at a hundred and twenty pence, a great sum in those days.'

Fossil Beavers.

Castor trogontherium.—Fischer has established this species from a single skull found in the beds near the sea of Azof. It is said to present the most striking analogy to the cranium of the European beaver, from which it does not differ except in its increased dimensions.

Fossil beaver of the Upper Val d'Arno.—Lyell, upon the authority of Mr. Pentland, mentions a fossil beaver from the Upper Val d'Arno, as being among the mammifers from that locality, in the museums at Paris. We have no means of judging whether this differs from Fischer's species.

BECCAFI'CO (Zoology), the Italian name for Beccafigo, or Fig-eater; Bec-figue of the French; Ficedula of the Latins; and Συκαλὶς of the Greeks. This name, as Charles Bonaparte, Prince of Musignano, observes, in his *Specchio Comparativo*, is applied to different birds of the genus *Sylvia* (Sylvan Warblers), whenever they are fat, and in a good state for the table. These are generally fruit-eaters in the season; but the true beccafico, with its 'carne squisita,' is, according to the Prince, the *Sylvia hortensis* of Bechstein.

The *Beccafigo*, or *Fig-eater*, of Willughby; *Ficedula septima Aldrovandi*, *Petticliaps Eboracensibus*, *Beccafigo Italis*, of Ray; appears to be the *Lesser Pettychaps*, *Sylvia hippolais* of Latham; *Motacilla hippolais* of Linnæus. The bird described by Willughby was shot in Yorkshire, and, on dissection, grape-stones and other seeds were found in its stomach.

[Sylvia hortensis.]

The Greater Pettychaps seems to have been first described as a British species by Latham, who received it from Sir Ashton Lever. The bird was obtained in Lancashire. It has since become better known, and its arrival with the other warblers in April and May, has been regularly noticed. Montagu, who observes that he traced it through the greater part of England, fixes the Tyne as its northern boundary; but he is corrected by Selby, who says, "I have often seen it on the north of the river Tweed."

All who have heard the bird agree in their praise of its song, which is little inferior to that of the nightingale. Montagu states that it frequently sings after sunset. "Some of the notes," says that ornithologist, "are sweetly and softly drawn; others quick, lively, loud, and piercing, reaching the distant ear with pleasing harmony, something like the whistle of the blackbird, but in a more hurried cadence." Selby corroborates this, observing that its song, although inferior in extent of scale, almost equals that of the nightingale in sweetness. It is seldom seen; for, like the rest of the tribe, it haunts the shadiest coverts, and usually sings from the midst of some close thicket. Lewin says that it makes its nest, for the most part with fibres and wool, sometimes with the addition of green moss, often in the neighbourhood of gardens, which it frequents, with the *White-throat* and *Black-cap*, for the sake of currants and other fruits. Montagu, who has recorded this habit, states also that it inhabits thick hedges, where it makes a nest near the ground, composed of goose-grass (*Galium Aparine*, Linn.) and other fibrous plants, flimsily put together, like that of the common *White-throat*, with the addition sometimes of a little green moss externally. Selby gives much the same description. It lays four, sometimes five eggs, about the size of a hedge-sparrow's, or hedge-warbler's, of a dirty white, blotched with light brown (Selby says wood-brown), the blotches being most numerous at the larger end. Its alarm-call, according to Selby, is very similar to that of the white-throat. Early in September it leaves us, and C. Bonaparte notes it as common near Rome in the autumn.

The following description of the Greater Pettychaps, whose length Montagu makes six inches, and its weight about five drachms, is by Selby.

"The whole of the upper parts oil-green, with a shade of ash-grey. On each side of the lower part of the neck is a patch of ash-grey. Throat greyish-white. Breast and flanks yellowish-grey, inclining to wood-brown. Belly and vent greyish-white. Orbits of the eyes white. Sides brown. Bill wood brown. Legs and claws bluish grey.

The female is similar in plumage to the male bird.

"The young of the year have the region of the eyes greyish-white. Head, upper part of the neck, back, rump, and wing coverts, yellowish-brown, passing into oil-green. Quills greenish-grey, edged with oil-green. Cheeks and sides of neck yellowish-grey. Throat, breast, sides, and under tail-coverts, wine-yellow. Middle of the belly white. Legs, toes, and claws, pearl-grey."

"Beccafigos," writes Willughby, after describing "the *fourth Beccafigo* of Aldrovand," "abound in Candy, as Bellonius witnesses, and also in the island of Cyprus, where they are salted up in great numbers, and transported into other countries. With us in England they are called by a general name, *Cyprus-birds*, and are in no less esteem with our merchants for the delicacy of their taste, than they were of old with the Italians; and that deservedly (saith Aldrovandus); for feeding upon two of the choicest fruits, viz., figs and grapes, they must needs become a more wholesome food than other birds, yielding a better nourishment, and of more easy concoction. Beccafigos are accounted best, and most in season in the autumn, as being then fattest by reason of the plenty of meat that season affords them. At which time they are highly prized, and coveted by the Italians even now-a-days."

The passage in *Aristotle*, book ix. ch. 49, where he speaks of the metamorphosis of birds, and says that the Συκαλὶς (fig eater) is a Συκαλὶς at the commencement of autumn, but a Μελαγκόρυφος (black-cap) at the end of that season, may very probably relate to the change of plumage in the *Black cap warbler*, '*Atricapilla* sive *Ficedula* Aldrov. Συκαλὶς et Μελαγκόρυφος Græcis. The *Black-cap*,' Ray; the young males of which resemble the female in plumage. [See BLACK-CAP.]

BECCARIA, CESARE BONESANA, MARQUIS OF, was born at Milan in 1735. The political speculations of France having spread to Italy, co operated with the instructions of Genovesi at Naples, and the perusal of the political works of Montesquieu, in directing Beccaria to the study of moral and political philosophy; and the patronage of Count Firmian, the Austrian governor of Lombardy, encouraged Beccaria, Count Verri, Frisi, and others to form a society in Milan, for the diffusion of literature and liberal opinions. In his 27th year, Beccaria published his first work, entitled *Del disordine e de' remedii delle monete nello stato di Milano*, nel 1762, con 4 tavole, 8vo. Lucca, 1762. 'Of the Abuses of the Coinage in the State of Milan and their Remedies.' In 1764 and 1765 the society, in imitation of the 'Spectator' of Addison, published *Il Caffè*, a periodical, which was completed in two vols. 4to., and consisted chiefly of papers on men and manners, with occasional discussions of important moral and political topics. The best papers are by Beccaria—his most humorous is on *smells*, and his most original on *style*. The last is an attempt to prove that nothing but the practice of proper rules is required for the attainment of excellence in eloquence and poetry. While this work was going on, Beccaria read in 1764, to the literary society, the MSS. of his work on 'Crimes and Punishments,' and in the same year, at their request, published it under the title of *Trattato dei delitti e delle pene*, 12mo. The work had great success. In Italy three editions were sold within six, and six editions within eighteen, months. In a few years it was translated into almost all the languages of Europe. It has been twice translated into French. The Abbé Morellet published a translation in 1766, which was undertaken at the recommendation of Malesherbes; the translation of M. Chaillou de Lisy was published in 1773, in 12mo. In 1797 a second edition of Morellet's translation was published, with notes by Diderot; and St. Aubin's translation of Jeremy Bentham's 'Theory of Penal Law.' Testimonials of approbation were sent to Beccaria by Catherine of Russia, the princes, and the people of Prussia and Tuscany; and a learned society of Berne, in Switzerland, sent him a medal. It was translated, in 1802, into modern Greek by Coray, for the benefit of his countrymen. An anonymous English translation appeared in 1766, with a translation of a commentary attributed to Voltaire.

The immethodical arrangement of this work renders an analysis difficult. In style it is clear, and occasionally eloquent. It breathes a fervid love of freedom and of humanity. In thought it is deep and original. We can only attempt to sketch its leading doctrine. Law is the restraint imposed by society. Punishment is the counter-action which society provides to prevent its members from violating its restraints. It ought to be a system of motives to counterbalance the motives to crime. The necessity of this counterbalance creates the right to punish—a necessity by which punishment ought to be measured and regulated. The due proportion between punishment and this necessity constitutes justice. If punishment oversteps this necessity it becomes tyranny, and when it does not come up to it, the motives to crime have a predominance, and crimes are consequently produced. This proportion society alone by its laws ought to determine. Hence, since society, the maker of the laws, is always in existence, the laws ought not to be interpreted by any other than the legislative body. If the interpretation of laws is left to judges, the rule of right becomes uncertain. To have a preventive influence on crime laws ought to be clearly expressed and well known. The standard of crime is the injury which it does to society. The best punishments are those which best prevent crimes. Pecuniary punishments are bad, in so far as they are apt to induce exaction instead of justice. Punishments ought to be immediate, to make the association between crime and punishment as close as possible. Transportation, by depriving the community, injured by the crime, of the example of the punishment, is therefore objectionable. The punishment of robbery ought to be pecuniary to counteract the cupidity, and corporal to counteract the violence of the crime. Infamy ought to be the punishment of crimes against honour. Since fanaticism is increased by corporal punishments, its punishments ought not to be corporal; and the proper punishment of persons who will not submit to the restraints of the community, is to send them out of it. Confiscation is unjust, because it falls upon the family or heirs of the offender, who are innocent of his offence. If the evil to the offender arising from the punishment is greater than the good he obtains from the crime, an increase of the certainty is more influential than an increase of the severity of the punishment. Severity destroys the sense of justice, and produces impunity, a fruitful source of crime. Hence the question of capital punishments. No one can give to society what he has not himself—a right to take away his life. History shows that this punishment does not prevent crime the most sanguinary governments have always had the most criminal population. Capital punishment is not a continued example of the evil of crime, and the character of individuals and communities is not changed by momentary but by continued impressions. Capital punishments cause by their severity compassion for the criminal to predominate over the terror of law and the fear of crime. For the benefit of every example, in the case of capital punishments, society first suffers the injury of a crime, and at best there is only a succession, not a perpetuity of the examples of the evil resulting to criminals from their misconduct; permanent examples of a long and durable punishment, such as perpetual slavery, and hard labour, for instance, must necessarily have more influence than examples of short duration, or examples scattered over different periods of time. The feeling of indignation which the punishment of death excites, is evinced by the contempt everywhere felt for the executioner; and since these truths have a universal bearing on the government of communities, Beccaria infers from the abolition of human sacrifices, once equally prevalent, the triumph of his benevolent principles.

Such is an outline of the principal doctrine of this work. It is far from being the only thing in the book, however, which contains several chapters on subjects not strictly connected with crimes and punishments. There are some valuable remarks on the processes and evidences on which convictions ought to be founded—the duties of nations to each other in regard to their criminals—espionage—suggestive interrogations—on the absurdity as well as cruelty of torture—on the power of forgiveness with which the sovereign is clothed, and several other topics; all of which are handled with considerable acuteness and originality. He concludes with urging the advantages of an improved system of education, and sums up in this general theorem: in order that a punishment may not be an act of violence of one or of many against a private member of society, it should be public, immediate, and necessary—the least possible in the case given: proportioned to the crime and determined by the laws.

Beccaria's success in this publication was not unalloyed. Accusations of impiety and sedition were brought against him in Milan, from the effects of which nothing but the powerful friendship of Count Firmian protected him. In 1768 the Austrian government founded a professorship of political philosophy for him at Milan, which he filled with distinguished success. In 1769 he published a 'Discourse on Commerce and Public Administration,' which was translated into French by J. A. Comparet; and in 1781 a Report of a plan for producing uniformity in the weights and measures of Milan. He died of apoplexy, in November, 1793. The lectures which he delivered as a professor were published at Milan in 1802, and they form a part of the series of 'Italian Economists,' published at Milan in 1804.

BECCARIA, GIOVANNI BAPTISTA, born at Mondovi, 1716, went to Rome and began theological studies in 1732, and was afterwards professor of philosophy at Palermo and Rome till 1748, when the King of Sardinia invited him to Turin. He published, in 1753, *Dell' Elettricismo naturale ed artificiale*, Turin. In 1758 he published *Lettere sull' Elettricismo*, addressed to Beccari, president of the Institute of Bologna. In 1759 he was engaged to measure a degree of the meridian in Piedmont, which he began in 1760, and finished before 1774, in which year the result was published at Turin, in a work entitled *Gradus Taurinensis*. He afterwards replied to some objections of Cassini in *Lettere d'un Italiano ad un Parigino*, Florence. There are some papers of his in the *Phil. Trans.* 1766—1769. He published also *Experimenta atque Observationes*, &c., Turin, 1769, *Dell' Elettricismo artificiale*, 1772, of which an English translation was published, at the recommendation of Franklin; *Dell' Elettricità terrestre atmosferica à cielo sereno*, 1755; besides various other smaller pieces, of which a catalogue is in *Memorie storiche intorno à gli studi del P. Beccaria*, by the Abbé Landi. He left a large number of manuscripts to M. Balbe, who wrote the account of him in the *Biographie Universelle*, from which the preceding is abridged. He died May, 1781.

Beccaria is principally known by his experiments on electricity, to which he was led by Franklin's writings. He showed that the passage of electricity is not instantaneous through the best conductors; that water, in small tubes, is a very imperfect conductor, and that its power in that respect increases as the tube becomes larger: he also first showed the electric spark in its passage through water, by confining the fluid in small tubes. (See Priestley's *History of Electricity*, v. i. p. 245, and the history in the *Encyclopædia Metropolitana*.)

The Piedmontese measure of the meridian is not now considered as entitled to much confidence. At the time it was observed that the two ends of the arc were in the neighbourhood of mountain masses, and though the local attraction had been for some time suspected, the discrepancy between the degree deduced by Beccaria and that of others required a supposition of more disturbance than was attributed to Chimboraço by Bouguer. [See ATTRACTION.] It has been of late years remeasured by Plana and Carlini, and the astronomical part proved to be erroneous: some anomaly still remains, but of a degree which is more likely to have been the correct amount, arising from local attraction. The remeasurement is published, entitled *Opérations Géodesiques*, &c. (See *Rep. Brit. Ass.*, v. i., p. 166.)

BECCLES, a market-town of the county of Suffolk, in the hundred of Wangford. It has a separate jurisdiction, and is considered the third town in the county. Beccles is situated on the river Waveney, which is navigable from Yarmouth: it is 32 miles N.N.E. from Ipswich, and 98 miles N.E. from London. The manor of Beccles, with an adjoining common of about 1400 acres, formed part of the possessions of Bury Abbey. On the dissolution of monasteries, the manor, with the common, was granted to William Rede, with a stipulation that the common was to be held for the use of the inhabitants. The poor are still allowed to pasture their cattle upon it on very easy terms. The management of the common is vested in a corporation, called the Corporation of Beccles Fen. The town sustained great injury in 1586 from a fire, which destroyed eighty houses, damaged the church, and occasioned loss of property to the amount of 20,000*l.*, as estimated at the time.

Beccles has a corporation consisting of a portreeve and thirty-six burgesses, distinguished as *the twelves* and *the twenty-fours*, the office of portreeve being held in rotation by the twelves. In consequence of its water communication with Yarmouth, the town carries on with the vicinity a considerable trade in coals, groceries, &c. The market-day is Saturday; and the fairs are on Whit-Monday, June 29, and October 2: the last for horses and pedlary. The population amounted, in 1831, to 3862 persons, of whom 2068 were females.

Beccles is a well-built town, consisting of several streets which terminate in a spacious area, where the market is held. The parish church, dedicated to St. Michael, appears to have been founded about the year 1369. The porch is of later date, and the steeple still later. The first legacy bequeathed for the erection of the steeple is dated 1515, from which time till 1547 there were many legacies towards 'building Becclys stepul.' The church stands on an eminence overlooking the level of meadows through which the Waveney flows. The west end of the church approaches so near to the edge of the cliff, that no room was left for the safe foundation of the steeple: which is, therefore, placed at a small distance from the south-east angle of the chancel. It is a fine tower of freestone: but it appears never to have been completed, the height not being proportionate to the size, and a parapet at the top being wanting, which seems to indicate that it was the intention of the architect to raise it higher than at present. The church itself is a fine Gothic structure. It consists of a nave, two aisles, and a chancel. The porch is a very beautiful specimen of the florid Gothic, differing in its style both from the church and the steeple. The living is a rectory, valued in the king's book at 21*l.* 12*s.* 3½*d.* Beccles formerly consisted of two parishes, St. Mary Endgate and St. Michael; but they were consolidated in 1419; and St. Mary's church was afterwards demolished by order of Queen Elizabeth. The dissenters have two chapels in the town.

Beccles has a handsome town-hall, in which the quarter-sessions are held; there is also a well-managed gaol, a theatre, and an assembly-room. A free-school was founded here in the reign of James I. by Sir John Leman, alderman of London, who endowed it with 100 acres of land for the maintenance of a master and usher to instruct 48 poor boys in writing and arithmetic. There is also a good grammar-school, founded in the year 1713 by Dr. Falconberg, who resided several years in the parish, and at his death bequeathed for this purpose an estate at Corton, in the same county, of the yearly rent of 40*l.* This school has ten exhibitions at Emanuel College, Cambridge. (*Beauties of England and Wales*, vol. xiv.; *Gentleman's Magazine*, vol. lxxxvii., part 2.; *Excursions in Suffolk*, 1819.)

BECKER, FERDINAND WILHELM, was born on the 24th of April, 1805, at Höxter on the Weser, where his father, the distinguished philologi

Becker, lived as a physician. In co

changes of which Northern Germa

by the French invasion, the famil

to Göttingen, and it was in the high school of that town, that Becker received his first classical education, while his father led him to collect minerals and plants, and thus to lay an early foundation for his subsequent studies in natural science. In 1816 the family left Göttingen, and settled at Offenbach, near Frankfort on the Main. Here Becker continued to devote his attention chiefly to botany, chemistry, and natural philosophy, partly under the guidance of his father, and partly by attending lectures on various branches of natural science, and also on anatomy, in Senkenberg's Institution at Frankfort. In 1820 Becker accepted the proposal of a young Scotchman, whose acquaintance he had made at Offenbach, to go as private tutor to his family at Glasgow. After a year he proceeded from Glasgow to Edinburgh, where he obtained the situation of assistant librarian in the Advocates' Library, and availed himself of the opportunities afforded by the university to pursue his studies in medicine and in the natural sciences. Early in 1825 he returned to Germany, and after visiting several of the universities, and the principal medical institutions there, he proceeded to Berlin, where (in January, 1826) he took his degree of doctor in medicine, and passed with high credit through the examinations necessary to enable him to practise as a physician in the Prussian dominions. In the autumn of the same year he returned to Edinburgh, at the invitation of his kind friend, Dr. John Thomson, the distinguished professor of pathology, who wished to avail himself of Becker's assistance in several literary undertakings, and especially in preparing an edition of Cullen's works. In March, 1828, he quitted Scotland, in order to accompany, in the capacity of physician, a German nobleman on a journey through Italy and France, and remained with him for nearly a year at Paris. Towards the end of 1829 Becker returned to Germany, and established himself as physician at Berlin, and in the following year as private lecturer on medicine, in the university of that capital. His lectures on various branches of practical medicine, especially on general pathology, met with great approbation, and with a success rarely experienced by public teachers in a German university, so soon after their first appearance. In 1833 the Prussian ministry for medical affairs intrusted him with the superintendence of an extensive inquiry concerning the efficacy of vaccination; and he was devoting himself with the utmost zeal to this difficult and important duty, when he died, after a short illness, on the 22d of June, 1834. His early loss was deplored by all who knew him, and his success in getting into extensive practice so early was the best proof of the estimation in which he was held. His only works, published separately, are his inaugural dissertation *De Glandulis Thoracis atque de Thymo* (Berlin, 1826, 4to.), and an essay *De Historica Medicinæ Explicatione* (Berlin, 1830, 8vo.), and also a very able pamphlet on Cholera, published in London expressly for the purpose of making known his ideas on the nature and treatment of that formidable disease, derived from extensive observation during the zealous discharge of his duty in attending a district of Berlin confided to his care; but his contributions to various German, English, and French periodical publications are numerous and valuable, and the preface to his German translation of Andral's *Pathology* (Berlin, 1832, 8vo.) may be considered as an original essay of high interest to medical science. Shortly before his death, Dr. Becker had undertaken to furnish some medical biographies for this work: all that he lived to execute are Archiater, Archigenes, Aretæus, Astruc, and Athenæus of Attalia.

BECKET, THOMAS, was born of English parents, in London, in 1117, where his father Gilbert was a merchant. He was first educated at Merton Abbey in Surrey, and afterwards in London, Oxford, and Paris. When employed in the office of the sheriff of London, his manners and talents recommended him to Theobald, archbishop of Canterbury, an acquaintance of his father, by whom he was sent to study civil law, first under Gratian at Bologna, and then at Auxerre in Burgundy. On his return, his patron gave him the livings of St. Mary-le-Strand, and Otteford in Kent; and sent him to manage the business of the see of Canterbury at the court of Rome. His success in two negociations, in restoring the legatine power to the see of Canterbury, and in obtaining from the pope the letters of prohibition, by which the design of crowning Prince Eustace the son of Stephen was defeated recommended him powerfully both to the archbishop and to King Henry II. Theobald made him archdeacon of Canterbury, provost of Beverly, and a prebendary of Lincoln and St. Paul's; and Henry made him chancellor in 1158, Becket being the first Englishman after the conquest who was appointed to any high office. At that time the chancellorship had no separate court of judicature attached to it; yet the place was one of great trust and dignity: the chancellor sat in the courts of the justiciary, to seal royal grants, to take care of the royal chapel, to hold the custody of vacant baronies and bishopricks, to look after the exchequer and revenue, and to discharge the duties which now devolve upon the secretaries of state. While performing these duties satisfactorily, Becket conformed himself in dress, manners, and splendour to the habits of a courtier. His table was sumptuous; his retinue splendid. To please the military taste of the king, he accompanied him in a campaign into France; headed his own 1200 horse and 700 knights; took the command of them at several sieges, and with his lance unhorsed in single combat a French knight of distinguished bravery and skill. About this time the king made him the tutor of his son. In 1160 Becket negociated at Paris, advantageously for his master, a marriage between Prince Henry and Margaret, daughter of the king of France.

When he had been little more than four years chancellor, the archbishop of Canterbury died, and the king, who was then in Normandy, took measures which almost compelled the monks and clergy to elect Becket to the vacant archbishopric. Foliot, bishop of London, alone opposed him openly: the rest were overawed by the threats of the king. Being only in deacon's orders, he was ordained priest the day before he was consecrated archbishop, in 1162, in presence of Prince Henry and many of the nobility. His first step on receiving his pall from Pope Alexander III. was to send his resignation as chancellor to the king; a step at which Henry showed his displeasure, on his return to England, by receiving him coldly, and compelling him to resign his archdeaconry, which he wished to keep.

Becket now changed his conduct. His biographers ascribe his conversion to the Divine blessing on the ceremony of consecration. The courtier changed into the monk; his manner of life became austere; he submitted to mortifications; gave much away in charity, and washed the feet of the poor. In 1163 he was received with great distinction at the council of Rheims, and laid a complaint before the assembly, on the usurpations by the laity of the rights and property of the church of England. On his return he prosecuted the usurpers, demanded the custody of Rochester castle from the crown, claimed the homage of Earl Clare for the manor of Tunbridge, and even excommunicated William, lord of the manor of Aynsford in Kent, for ejecting by force of arms a priest collated to the rectory of that manor by the archbishop.

He soon came to a rupture with the king. Henry, who wished to subject the clergy to the authority of the civil courts for murder, felony, and similar crimes, endeavoured, in 1164, to get the consent of the archbishop to the celebrated *Constitutions of Clarendon.* On Becket's refusal Henry took his son from under his care, and the archbishop solemnly swore he never would comply. When the compliance of several bishops, the threats of the nobles, and the interference of the pope, at last compelled him to violate his oath and set his seal to these restrictions, he expressed his penitence by retiring from the court, and privately suspending himself from officiating in the church, until he obtained the absolution of his holiness. [See CLARENDON.]

Finding himself the object of the king's displeasure, he attempted to escape to France, upon which Henry summoned a parliament at Northampton, in 1165, and charged him with breaking his allegiance. He was sentenced to forfeit all his goods and chattels; a penalty which was immediately commuted into a fine of 500*l.* Next morning he was ordered to refund 300*l.* of the rents which he had received as warden of Eye and Berkhamstead, and 500*l.* which he had received from the king before the walls of Toulouse. On the third day he was requested to give an account of all his receipts from vacant abbeys and bishoprics during his chancellorship: the balance due to the crown was said to be 41,000 marks. Becket appealed to the pope in vain, and his episcopal brethren deserted, abused, and opposed him. During the trial, when many of his retainers left him, he invited all the beggars in the neighbourhood to his table; and on another occasion he entered the parliament carrying the cross, to signify that he had put himself under its protection, and refused to listen to the sentence of the parliament. When all went against him, he escaped from Northampton by night, and after lurking some time on the coast, embarked at Sandwich in Kent, on the 10th of November, 1164, and reached Gravelines in Holland. After several changes, he lived for nearly two years at Pontigny in France.

On his escape Henry confiscated his revenues, and used all his influence to get him banished from Flanders and France. The king of France and the pope, however, took up the cause of Becket, though Henry sent a splendid embassy of bishops and nobles to advocate his cause at the court of Rome. In an interview with his holiness, Becket resigned his see into his hands, which was immediately restored to him. During his retirement he occupied himself in religious exercises, but this was not sufficient to keep him employed: he wrote to the king and the prelates of England, telling them that the pope had annulled the Constitutions of Clarendon, and he excommunicated several violators of the rights of the church, not sparing some of the principal officers of the crown. Exasperated at this, Henry erased his name from the liturgy; banished all his relations to the number of 400, binding them by oath to show themselves to their kinsman; forced the Cistertian monks to turn him out of the shelter they gave him, by threatening to seize their property in England, and made it a criminal offence to write or correspond with him in any

Becket, on his part, wrote letters of severe recrimination to the prelates of England; and about the beginning of June, 1166, prepared himself by religious rites for the excommunication of the English king, which he was only vented from carrying into effect by hearing of his dangerous illness. After this, having obtained the legatine power of all England, except the see of York, he found means, in spite of the watchfulness of the king's emissaries at all the English ports, to send letters to the bishop of London, commanding him to publish his appointment, and to go over on pain of excommunication with all the rest of the prelates to France, and tender their obedience to their legate. The terrified bishop implored the king to permit his compliance; but the king, it is said, produced secret letters from the pope, nullifying the authority of Becket.

Several of the French and English nobles, the bishops of the province of Canterbury, the pope and the king of France tried to reconcile Becket and Henry; but the obstinacy of the former in refusing to make an unconditional submission, and of the latter in upholding his innovations, rendered all their negociations useless. They met themselves, for the purpose, three times. The second interview failed because the king refused Becket the kiss of peace. Next year Henry ordered the ceremony of crowning his son, Prince Henry, a prerogative of the archbishop of Canterbury, to be performed by the archbishop of York. When Becket complained to the pope, the archbishop of York and all the prelates who assisted him were suspended.

At length, in 1170, a reconciliation took place at Freitville on the borders of Touraine, when the king restored Becket to his see with all its privileges, and held the bridle of the archbishop's horse while he mounted and dismounted. Becket entered Canterbury amidst the shouts of the people. But after all his sufferings he was rash enough to publish the suspension of the archbishop of York and all the bishops who had assisted at Prince Henry's coronation; and the king, who was then in Normandy, is said to have expressed his vexation that none of his followers had revenged him on this insolent priest. Reginald Fitzurse, William de Tracy, Hugh de Moreville, and Richard Brito, four barons, accordingly formed a resolution either to effect the submission or the death of the archbishop. They set out by different routes, and met on the 28th of December, 1170, at Ranulp de Broc's castle, six miles from Canterbury, where they formed their plan. Early next morning they entered Canterbury with a body of men, whom they stationed at different places to keep down the citizens. They had an interview with the archbishop in his palace in the morning, when high words passed between them; and in the evening they entered the cathedral while Becket and some of his clergy were at vespers. When the alarm was given some of the priests would have shut the door, but Becket would not let them 'make a castle of a church.' He boldly faced the conspirators, and replied to their threats by declaring that he was willing to die, and earnestly charging them not to hurt any one but himself. The assassins trying to drag him out of the church, he clung to a pillar near the high altar, collared De Tracy, and almost threw him down. De Tracy aimed a blow at him, which slightly wounded him, but broke the arm of Edward Grimes, his crossbearer. The archbishop then putting himself in a devout posture, the blows of the other assassins clove his skull and scattered his brains over the pavement.

After the murder the assassins retired to Knaresborough, and soon found themselves shunned by every one. They all ended their days as penitents at Jerusalem, and this inscription in Latin was put on their tomb:—

'Here lie the wretches who murdered St. Thomas of Canterbury.'

The pope suspended divine service in the cathedral for a year. Two years afterwards Becket was canonized. In 1221 his body was taken up in presence of Henry III., and deposited in a rich shrine on the east side of the church. It became the resort of pilgrims, and numerous miracles were said to be performed at the spot; but the shrine was despoiled at the reformation of Hen. VIII., and the saint's name erased from the calendar.

There are several MS. lives of Becket in the British Museum, and in the libraries of Lambeth and Oxford.

In 1666 a pamphlet appeared, called *The Prophecie of Thomas Becket, Archbishop of Canterbury, in the Reign of Henry II., concerning the Wars between England, France, and Holland*, 4to. London.

Becket's letters were published under the following title: *Epistolæ et Vita Divi Thomæ Martyris et Archi-episcopi Cantvariensis, &c.*, Bruxellæ, 1604.

(See Lingard's *History of England*, vol. ii.; and Lord Lyttleton's *History of the Reign of Henry II.*, vol. ii.)

BECKMANN, JOHN, a well-known German author, was born at Hoya, a small town in the kingdom of Hanover, in the year 1739. He went to the school at Stade, and afterwards to the university of Göttingen, where he at first studied theology, but soon acquired a taste for natural philosophy and chemistry. In 1763 he went to Petersburgh, where he was made professor of natural philosophy and history, at the Lutheran gymnasium of that city. He resigned this place in 1765, and made a journey through Sweden, during which he became acquainted with Linnæus, and obtained a considerable knowledge of the working of the mines in Sweden. On his return to Germany, he was appointed professor of philosophy at Göttingen, 1766, and four years afterwards, 1770, ordinary professor of economy at the same university, which place he kept till his death, 1811. Beckmann united an extensive knowledge of nature with a decided turn for applying it to practical purposes; and he published several works which show this tendency of his mind: among others, *Principles of German Agriculture*, which passed through six editions; and a *Technology*, which was reprinted five times. Of his other works, the most remarkable are, *Contributions* (additions) *to the History of Inventions*, which, somewhat shortened, has been translated into English; and *Introduction to the Science of Commerce*. He also published an edition of the work attributed to Aristotle, entitled *De Mirabilibus*, and an edition of the *Collection of Wonderful Histories* by Antigonus Carystius.

BECMAN, JOHN CHRISTOPHER, historian and geographer, was born at Zerbst in Anhalt, September 2nd, 1641. Having finished his earlier studies at Francfort, he travelled through Germany, Holland, and England. He afterwards returned to Francfort, where he was made professor of Greek in the university there in the month of January, 1667, and afterwards professor of history. In 1673 he became librarian to the university, and was chosen professor of Theology in 1690. He died at Francfort, March 6th, 1717. His chief works are: 1. *Historia Orbis Terrarum geographica et civilis*, 4to. Franc. ad. Od. 1673, several times reprinted, the third edition appeared at Leipsic in 1685; 2. *Memoranda Francofurtana*, 4to. Franc. ad Od. 1676; 3. *Catalogus Bibliothecæ publicæ Universitatis Francofurtanæ per cognomina auctorum dispositus*, fol. Franc. ad Viad. 1706; 4. *Notitia Universitatis Francofurtanæ*, fol. Franc. ad Viad. 1707; 5. *Historia Anhaltina*, vii. part. fol. Zerbst, 1710, with numerous plates; 6. *Accessiones Historiæ Anhaltinæ*, with a continuation of the history of the principality from 1709 to 1716, three vol. fol. 1716; 7. *Historia Francofurtana*, fol. (See *Notit. Univ. Francof.* p. 59; *Biogr. Universelle*, tom. iv. 8vo. Par. 1811, p. 33.)

BED OF JUSTICE. This expression (*lit' de justice*) literally denoted the seat or throne upon which the king of France was accustomed to sit when personally present in parliaments, and from this original meaning the expression came, in course of time, to signify the parliament itself. Under the antient monarchy of France, a bed of justice denoted a solemn session of the king in the parliament, for the purpose of registering or promulgating edicts or ordinances. According to the principle of the old French constitution, the authority of the parliament, being derived entirely from the crown, ceased when the king was present; and consequently all ordinances enrolled at a bed of justice were acts of the royal will, and of more authenticity and effect than decisions of parliament. The ceremony of holding a bed of justice was as follows:—The king was seated on the throne, and covered; the princes of the blood-royal, the peers, and all the several chambers were present. The marshals of France, the chancellor, and the other great officers of state stood near the throne, around the king. The chancellor, or in his absence the keeper of the seals, declared the object of the session, and the persons present then deliberated upon it. The chancellor then collected the opinions of the assembly, proceeding in the order of their rank; and afterwards declared the determination of the king in the following words: 'Le roi, en son lit de justice, à ordonné et ordonne qu'il sera procédé à l'enregistrement des lettres sur lesquelles on à délibéré.' The last bed of justice was assembled by Louis XVI. at Versailles, on the 6th of August, 1788, at the commencement of the French revolution, and was intended to enforce upon the parliament of Paris the adoption of the obnoxious taxes, which had been previously proposed by Calonne at the Assembly of

Notables. The resistance to this measure, and the effect it had in leading to the assembly of the States-General, and ultimately to the revolution, belong to another article.

BEDA, or BEDE, an English monk, one of the brightest ornaments of the eighth century, and one of the most eminent fathers of the English church, whose talents and virtues procured him the name of the *Venerable Bede*, was born, according to some, about the year 672, after Malmesbury's calculation in 675, according to Symeon of Durham in 677, upon the estates which afterwards belonged to the two abbeys of St. Peter and St. Paul in the bishoprick of Durham, at Wearmouth and Jarrow, near the mouth of the river Tyne. We have his own authority that at seven years of age he was brought to the monastery of St. Peter, and committed to the care of Abbot Benedict, under whom and his successor Ceolfrid he was carefully educated for twelve years, a favour which he afterwards repaid by writing their lives. In his nineteenth year he took deacon's orders, and in his thirtieth year, at the instance of Ceolfrid his abbot, was ordained priest, both times by John of Beverley, then bishop of Hagustald, or Hexham, who had been one of his early preceptors. The fame of Bede now reached even to Rome, and Pope Sergius made an earnest application to Abbot Ceolfrid that Bede might be sent to assist him in the promulgation of certain points of ecclesiastical discipline; but Bede, who was attached to his studies, remained in his monastery, improving himself in all the learning of his age, and directing his more particular attention to the compilation of an *Ecclesiastical History of the English Nation*, the materials for which he obtained partly from chronicles, partly from annals preserved in contemporary convents, and partly from the information of prelates with whom he was acquainted. Making allowance for the introduction of legendary matter, which was the fault of the age, few works have supported their credit so long, or been so generally consulted as authentic sources. Bede published this history about the year 734, when, as he informs us, he was fifty-nine years of age, but before this he had written many other books on various subjects, a catalogue of which he subjoined to his history. By these he obtained such reputation as to be consulted by the most eminent churchmen of his age, and particularly by Egbert, Archbishop of York, who was himself a very learned man. To him Bede wrote an epistle which illustrates the state of the church at that time. It was one of the last, and indeed probably the very last of Bede's writings. In this letter he expresses himself with much freedom, both in the advice he gave to Egbert, and with respect to the inconveniences which he foresaw would arise from the multiplication of religious houses, to the prejudice both of church and state.

It appears from this epistle that Bede was much indisposed when he wrote it, and probably began to fall into that declining state of health from which he never recovered. William of Malmesbury in his history (*De Gestis Regum*, lib. iii. c. iii.), and Symeon of Durham in his account of the church of Durham (lib. i. c. xv.), chiefly from the relation of one Cuthbert, a fellow monk, have preserved full accounts of the manner in which Bede died: whence we learn that the last stage of his distemper was an asthma, which he supported with great firmness of mind, although in much weakness and pain, for seven weeks, during which time he did not in the least abate his usual employments in the monastery, but continued to pray, to instruct the younger monks, and to prosecute the literary undertakings which were still in his hands. In the nights of his sickness, in which, from the nature of his disease, he had little sleep, he sung hymns and praises to God; and though he expressed the utmost confidence, and was able, on a review of his own conduct, to declare seriously that he had so lived as not to be afraid to die, yet he did not deny his apprehensions of death, and that dread which is natural to man at the approach of his dissolution. He was continually active to the last, and particularly anxious about two works, one his translation of St. John's Gospel into the Saxon language, the other some passages which he was extracting from the works of St. Isidore. From the monks' relation it appears that the day before his death he grew much worse, and his feet began to swell, yet he passed the night as usual, and continued dictating to the person who acted as his amanuensis, who, observing his weakness, said, 'There remains now only one chapter, but it seems difficult to you to speak.' To which he answered, 'It is easy; take your pen, dip it in the ink, and write as fast as you can.' About nine o'clock he sent for some of his brethren, priests of the monastery, to divide amongst them some incense and other things of little value, which he had preserved in a chest. While he was speaking, the young man, Wilberch, who wrote for him, said, 'Master, there is now but one sentence wanting,' upon which he bid him write quick, and soon after the scribe said, 'Now it is finished.' To which he replied, 'Thou hast said the truth, "consummatum est."' Take up my head, I wish to sit opposite to the place where I have been accustomed to pray, and where now sitting I may yet invoke my Father.' Being thus seated, according to his desire, upon the floor of his cell, he said, 'Glory be to the Father, and to the Son, and to the Holy Ghost,' and as he pronounced the last word he expired. He died, according to the best opinion, May 26th, 735, though the exact date has been contested. His body was interred in the church of his own monastery at Jarrow, but long afterwards was removed to Durham, and placed in the same coffin or chest with that of St. Cuthbert, as appears by a very antient Saxon poem on the relics preserved in the cathedral of Durham, printed at the end of Symeon of Durham's history. (Twysden's *Decem Scriptores*, col. 32.)

Malmesbury says, 'With this man was buried almost all knowledge of history down to our times; inasmuch as there has been no Englishman either emulous of his pursuits, or a follower of his graces, who could continue the thread of his discourses now broken short.' He complains, in addition, of the indolence and want of learning of the monks in Bede's monastery, down even to his own time, which he exemplifies in the meanness of the lines so disgracefully suffered to remain upon Bede's tomb:—

> 'Presbyter hic Beda requiescit carne sepultus:
> Dona, Christe, animam in cœlis gaudere per ævum;
> Daque illi sophiæ debriari fonte, cui jam
> Suspiravit ovans, intento semper amore.'
>
> 'Here in the flesh rests Bede the priest; O give
> His soul with joy eternally to live:
> And let him quaff, O Christ, of wisdom's stream:
> This was his wish, his fond, perpetual theme.'

Warton, in the second dissertation prefixed to his first volume of the *History of English Poetry*, has justly observed that Bede's knowledge, if we consider his age, was extensive and profound; and it is amazing in so rude a period, and during a life of no considerable length, that he should have made so successful a progress, and such rapid improvements in scientific and philological studies, and have composed so many elaborate treatises on different subjects. It is diverting, he adds, to see the French critics censuring Bede for credulity; they might as well have accused him of superstition. There is much perspicuity and facility in his Latin style, but it is void of elegance, and often of purity; it shows with what grace and propriety he would have written had his taste been formed on better models. Whoever looks for digestion of materials, says Warton, disposition of parts, and accuracy of narration in this writer's historical works, expects what could not exist at that time. He has recorded but few civil transactions; but besides that his history professedly considers ecclesiastical affairs, we should remember that the building of a church, the preferment of an abbot, the canonization of a martyr, and the importation into England of the shin-bone of an apostle, were necessarily matters of much more importance in Bede's conception than victories and revolutions. He is fond of minute description; but particularities are the fault, and often the merit of early historians.

The first catalogue of Bede's works, as we have before observed, we have from himself, at the end of his *Ecclesiastical History*, which contains all he had written before the year 731. This we find copied by Leland, who also mentions some other pieces he had met with of Bede's, and points out likewise several that passed under Bede's name, though, in Leland's judgment, spurious. (Lel. *de Script. Brit.* ed. Hall, Oxf. 1709, tom. i. p. 115.) Bale, in the first edition of his work on British writers (4to. Gippesw. 1548, fol. 50), mentions 96 treatises written by Bede, and in his last edition (fol. 1559, p. 94) swells these to 145 tracts; and declares at the close of both catalogues that there were numberless pieces besides of Bede's which he had not seen. Pits has enlarged even this catalogue; though, to do him justice, he appears to have taken great pains in drawing up the article on Bede, and mentions many of the libraries in which these treatises are to be found. The catalogues given by Trittenheim, or Trithemius (*Catal. Script. Ecclesiast.* 4to. Col. 1531, fol. 50 b.), and Dempster (*Hist. Ec-*

clesiast. Gentis Scotorum, edit. Edinb. 1829, tom. i. p. 69) are much inferior to these.

The *Historia Ecclesiastica* was printed for the first time about 1474, in the type which passes for that of Conrad Fyner of Esling; a copy of it is preserved in the Bibliothèque du Roi at Paris, and there is another copy in the library of the Right Honourable Thomas Grenville in England. It is a volume of extreme rarity. King Alfred translated this history into Saxon, and the royal version, accompanied by the original Latin, was published first by Wheloc, fol. Cambr. 1644, and subsequently by Dr. Smith, canon of Durham, with greater care, fol. Cambr. 1722. An English translation of this history was first published at Antwerp in 1565, by Thomas Stapleton, a doctor of divinity of the University of Louvain; another and better translation was published, 8vo. Lond. 1723, immediately after the publication of Dr. Smith's edition; and a third has since appeared, translated by the Rev. William Hurst, 8vo. Lond. 1814.

The first general collection of Bede's works was published at Paris in 1544, in three volumes folio. They were printed again at the same place in eight volumes folio, in 1554; in the same size and number of volumes at Basle, in 1563; reprinted at Cologne in 1612; and, lastly, at Cologne in 1688. There is a very clear and distinct account of the contents of these volumes in the 'Notes to the Life of Bede' in the 'Biographia Britannica,' edit. 1747, vol. i. pp. 649-652; and other analyses may be found in the works of Casimir Oudin, and Mabillon, and in Cave's 'Historia Literaria.'

Those treatises of Bede's which are mentioned in his own catalogue of his works were published by the learned and industrious Mr. Wharton, from three MSS. in the valuable library in the archiepiscopal palace at Lambeth, under the title of 'Bedæ Venerabilis Opera quædam Theologica, nunc primùm edita, necnon Historica antea semel edita. Accesserunt Egberti archiepiscopi Eboracensis Dialogus de Ecclesiasticâ Institutione, et Adhelmi Episcopi Sareburnensis Liber de Virginitate, ex codice antiquissimo emendatus.' 4to. Lond. 1693.

The antient and celebrated copy of the Latin Gospels, written before 720, with an interlineary Saxon gloss, originally kept in the monastery of Lindisfarne, afterwards transferred to Durham, and now preserved among the Cottonian MSS. in the British Museum (marked NERO E. IV.), is reputed to have been once the property of the Venerable Bede.

(Besides the works which have been already quoted, Symeon of Durham's *Historia Ecclesiæ Dunelmensis*, Tanner's *Bibliotheca Britannico-Hibernica*, the *Biographia Britannica*, Henry's *History of Britain*, and the life appended to Smith's edition of Bede's *History*, are the chief authorities for the present account.)

BEDARIEUX, or **BEDARRIEUX**, or **BEC D'ARIEUX**, a town in France, in the department of Hérault, about 35 miles nearly due west from Montpellier. It is on the left or east bank of the river Orb, which waters the department in the western part, and at the foot of the great chain of the Cévennes. The Cévennes lie to the N.W. of Bedarieux; and a branch from the principal chain, running southward between the rivers Orb and Lergue (the latter a feeder to the Hérault), passes on the east side of the town, which is thus nearly enclosed by the mountains. It is in 43° 36′ N. lat., and in 3° 12′ E. long.

Bedarieux is not remarkable, except for its woollen manufactures, which were established long ago, and constituted in the early part of the eighteenth century the only claim of the town to notice. (Martinière, *Le Grand Dictionnaire*.) Cloth, for the Levant, and for consumption in the interior of France; mixed fabrics of cotton and wool, and of silk and wool, are made here. Leather, paper, oil, brandy, and glass are also among the productions of the industry of Bedarieux. Population in 1832, of the town, 5781; of the whole commune, 5998. (*Dictionnaire Universel de la France*.)

BEDCHAMBER, LORDS OF THE, are officers of the royal household, under the groom of the stole. The number of lords is twelve, who wait a week each in turn. The groom of the stole does not take his turn of duty, but attends his majesty on all state occasions. There are thirteen grooms of the bedchamber who wait likewise in turn. The salary of the groom of the stole is 2000*l.* per annum, of the lords 1000*l.* each, and of the grooms 500*l.* They are in the royal nomination.

Chamberlayne, in his *Present State of England*, 12mo. Savoy, 1669, p. 249, calls them gentlemen of the bedchamber. 'The gentlemen of the bedchamber,' he says, 'consist usually of the prime nobility of England. Their office in general is, each one in his turn, to wait a week in every quarter in the king's bedchamber, there to lie by the king on a pallet-bed all night, and in the absence of the groom of the stole to supply his place.' In the edition of the same work published in 1716, he adds, 'Moreover, they wait upon the king when he eats in private; for then the cupbearers, carvers, and sewers do not wait. This high office, in the reign of a queen, as in her late majesty's, is performed by ladies, as also that of the grooms of the bedchamber, who were called bedchamber women, and were five in number.'

The title of lords of the bedchamber appears to have been adopted after the accession of the House of Hanover. They are first mentioned by that title in Chamberlayne's *State of England*, for 1718.

Compare also the *New Compan. to the Kalendar*, 8vo. Lond. 1820, p. 63.

BEDDOES, THOMAS, a distinguished physician, was born at Shiffnall, in Shropshire, in April, 1760. His father, who was a tanner, wished to bring up his son to the same business, but his grandfather, perceiving the abilities which he early manifested, prevailed upon his father to educate him for some profession. An accident which befell his grandfather, and required the attendance of a surgeon, determined young Beddoes to study medicine. He received the rudiments of his general education at Brewood, or Brood, in Staffordshire, whence he was removed to Bridgenorth, and afterwards, in 1773, he was placed under the care of the Rev. S. Dickenson, rector of Plym-hill, in Staffordshire. In 1776 he entered at Pembroke College, Oxford, and soon became distinguished for his learning, and his acquaintance with languages, both antient and modern: in the latter he was entirely self-instructed. During his residence at the university, he also devoted much of his time to chemistry and geology. The recent discoveries of Black and Priestley, in respect to the different gases or airs, directed the attention of men of science more especially to these subjects, and Beddoes fully participated in the interest which they excited. He also early formed high expectations of the uses of these discoveries, especially in the treatment of diseases, and had that direction given to his mind which ever afterwards induced him to trust greatly to pneumatic medicine. Mineralogy and botany also occupied much of his attention while at Oxford. Having, in 1781, taken his Bachelor's degree, he proceeded to London to study medicine, and became a pupil of the celebrated Sheldon.

In 1784, while residing in London, he published, but without his name, a translation of Spallanzani's *Dissertations on Natural History*. In the autumn of 1784 he removed to Edinburgh, where he spent two winters and one summer. He was greatly distinguished among the students, and attracted the notice of Dr. Cullen, by whom he was employed to add notes to his translation of Bergman's *Essays on Elective Attractions*, to which work Beddoes affixed his name.

In 1786 he took his degree of Doctor of Medicine at Oxford: and in the course of the following summer he visited France, where he became acquainted with Lavoisier and other celebrated chemists. On his return from the Continent he was appointed reader in chemistry to the University of Oxford, where he maintained the current doctrines of the day with much learning, ingenuity, and eloquence. In his views respecting geology he embraced the theory of Hutton, and was a decided believer in the existence of a central fire, by the agency of which the crust of the earth had assumed its present form. In 1790 he published *Chemical Experiments and Opinions*, extracted from a work published in the last century, in which he endeavoured to obtain justice for the views and discoveries of Dr. Mayow in pneumatic chemistry.

Being of an ardent disposition, and entertaining great expectations of the perfectibility of human nature, he eagerly adopted the views of the partizans of the French Revolution; and it is thought that the freedom with which he expressed his opinions gave so much offence to the superiors of the University of Oxford, as to render his residence there no longer agreeable. It is also probable that some of his religious opinions contributed to determine him to resign his readership in chemistry, which accordingly he did in 1792

Upon retiring from Oxford he took up his abode with a friend in Shropshire, where he wrote a work, entitled *History of Isaac Jenkins*, intended to check drunkenness; and several medical works, in which he embodied his peculiar views regarding the origin and treatment of several diseases. The few and feeble attempts which had, for some years previous, been made to maintain the soundness of the basis of the humoral pathology as the universal cause of diseases, served rather to convince the examining and reflecting part of the profession of its want of foundation, than to add to the number of believers in it. The application of chemistry to the investigation of the composition of the fluids of the human body, and the different condition of these fluids which it demonstrated to exist in different states of disease, seemed to furnish new facts in its favour. Beddoes, with that zeal which marked all his actions, stepped forward as its advocate, and referred all diseases to the predominance or deficiency of some elementary principle. He attributed scurvy to an abstraction of oxygen, and consumption to an accumulation of oxygen. The remedies which he proposed for the cure of these diseases were in conformity with these views; and he believed that breathing an atmosphere charged with the principle which was deficient would cure the one, and with a principle opposed to that which predominated would cure the other. Not only did he write in support of these views, but he sought an opportunity of testing them by experiment. At first he thought of London as the place best fitted for his purpose, but ultimately fixed on Bristol for the scene of his pneumatic hospital. In 1798 a pneumatic institution was established, in effecting which object Dr. Beddoes was materially assisted by Mr. Richard Lovell Edgeworth, one of whose daughters he married in 1794, and Mr. Gregory Watt. His publications at this time prove his activity, as well as the particular direction of his thoughts. They almost all refer to peculiar views respecting the possibility of curing diseases by breathing a medicated atmosphere. That the results did not correspond with the expectations of the founder of this new method is well known; but the undertaking was the means of bringing into notice the talents of Humphrey Davy, who was recommended to Dr. Beddoes by Mr. Gregory Watt, as a fit person to superintend the chemical laboratory connected with the Institution. The first discoveries of this eminent chemist were given to the world in a publication which came from Beddoes's Institution: *Experimental Essays on Heat, Light, and the Combinations of Light*, by Humphrey Davy, appeared among the *Contributions to Medical and Physical Knowledge from the West of England*, Bristol, 1799.

Many publications of Dr. Beddoes about this time referred to the political topics of the day, in which he always embraced the liberal side of the question.

His principal medical publications after this date were: a *Popular Essay on Consumption*, 1779, containing, if we except the author's peculiar doctrines, many valuable remarks on the predisposing causes and means of preventing that disease; *Hygeia, or Essays Moral and Medical*, which is a popular treatise on the 'Causes of Diseases,' and the means of avoiding them, 3 vols. 8vo. 1802. He also wrote at an earlier date a work on *Demonstrative Evidence*, 1792. *An Essay on Fever* was written in 1807, with many others of less note, which he continued to publish in rapid succession till 1808, when, in consequence of an affection of the heart, he died in December of that year, in the forty-eighth year of his age.

He is represented by his biographer and friend, Dr. Stock, as an extremely amiable man, who had only truth for his object, and the good of his fellow-creatures as the end of all his efforts. He was extremely enthusiastic in whatever he undertook; but the ardour of his imagination, and the tendency to hasty generalisation which characterized his mind, prevented him from examining carefully his data, or forming the most correct conclusions. A passage in his *Essay on Fever*, in which he condemns the hasty views of other writers, and the unsuccessful practice founded on them, gives the truest character of his own labours and writings. 'If these systems,' says he, 'have superseded the investigation of phenomena such as, when once ascertained, strike the senses too powerfully to leave the judgment in suspense; if they have prevented us from analysing the mutual relations of these phenomena; if they have tempted ingenuity to waste itself upon the means of correcting imaginary deviations from the standard state of health; we may surely pass them by, after giving a moment of regretful admiration, to the talents by which some of them were constructed.'

(See Stock's *Life of Beddoes*, one vol. 4to. Lond. 1810.)

BEDE-HOUSE, a term used for an alms-house. Hence bede-man, or beid-man, a person who resides in a bede-house, or is supported from the funds appropriated for this purpose. In the *Statistical Account of Scotland*, vol. xiii. p. 412, parish of Rathven in Banffshire, it is said—'There is a bede-house still in being, though in bad repair; and six bede-men on the establishment, but none of them live in the house.' In the Court of Exchequer in Scotland, this term is used to denote that class of paupers who enjoy the royal bounty.

BEDELL, WILLIAM, Bishop of Kilmore in Ireland, one of the most exemplary prelates of the seventeenth century, was descended from a good family, and was born in the year 1570, at Black Notley in Essex. He was matriculated a pensioner of Emmanuel College, Cambridge, March 12, 1584, where he was placed under the care of Dr. Chadderton, for many years the head of that house. He entered early into holy orders, which he received from the suffragan bishop of Colchester. In 1593 he was chosen fellow of his college, and in 1599 took the degree of bachelor in divinity. He then removed from the University to St. Edmundsbury in Suffolk, where he had a church, to the duties of which he assiduously attended for a few years, till an opportunity offered for his going as chaplain to Sir Henry Wotton, the English ambassador to the state of Venice, about the year 1604. While he resided in that city he became intimately acquainted with Father Paul Sarpi, who took him into his confidence, and taught him the Italian language, of which Bedell became so perfect a master, that he translated into that tongue the English 'Common Prayer Book,' which was extremely well received by many of the clergy there, especially by the seven divines who were appointed by the Republic to preach against the pope, during the time of the Interdict, and which they intended to have taken for their model had they broken absolutely with Rome, which was what they sincerely desired. In return for the favours he received from Father Paul, Mr. Bedell drew up an *English Grammar* for his use, and in many other respects assisted him in his studies. He continued eight years in Venice, during which time he not only studied the Hebrew language, but entered deeply into rabbinical learning, under Rabbi Leo. He made acquaintance also with the celebrated Antonio de Dominis, archbishop of Spalatro, who was so pleased with his conversation as to give him his thorough confidence, and showed him his famous book, *De Republica Ecclesiastica*, which was afterwards printed at London. Bedell corrected many misapplications of scripture, and quotations from the fathers in that work, and was highly valued by De Dominis, who even accompanied him to England. At Bedell's departure from Venice, Father Paul expressed a deep concern, and said that both he and many others would have come over with him to England if it had been in their power; but that he might never be forgotten by him, he gave him his picture, with a Hebrew Bible without points, a little Hebrew Psalter, in which he wrote some sentences expressive of his esteem, the MS. of his *History of the Council of Trent*, and the histories of the Interdict and Inquisition; together with the originals of the Letters which Father Paul had received weekly from Rome, during the contests between the Jesuits and the Dominicans concerning the efficacy of grace.

On his return to England Mr. Bedell retired immediately to his charge at St. Edmundsbury, where he continued his ministerial labours; employing himself at the same time in translating into Latin the *Histories of the Interdict and Inquisition*, and the two last books of the *History of the Council of Trent*, Sir Adam Newton having translated the two first. At this time he mixed so little with the world that he was almost totally forgotten. So little, indeed, was he remembered that some years after, when the celebrated Diodati of Geneva came over into England, he could not, though acquainted with many of the clergy, hear of Mr. Bedell. Diodati was greatly amazed that so extraordinary a man, who was so much admired at Venice by the best judges of merit, should not be known in his own country; and he had given up all hopes of finding him out, when, to their no small joy, they accidentally met each other in the streets of London. Upon this occasion Diodati presented his friend to Morton, the learned bishop of Durham, and told him how highly he had been valued by Father

Paul, which engaged the bishop to treat Bedell with particular respect. At length Sir Thomas Jermyn, a Suffolk gentleman, presented him to the living of Horingsheath in 1615; but he found difficulties in obtaining institution and induction. Dr. Jegon, bishop of Norwich, requiring fees on the occasion so large, that Bedell considered the demand to partake of simony. He, in consequence, refused to pay any thing beyond the expense of parchment, writing, and wax; and, declining to take his title to the living upon any other terms, went home, but in a few days the bishop sent for him, and gave him institution without the charge of fees. Here Bedell continued twelve years, and during that time published and dedicated to King Charles I., then Prince of Wales, 'The Copies of certain Letters which have passed between Spain and England in matter of Religion, concerning the general Motives to the Roman Obedience, between Mr. James Waddesworth, a late pensioner of the Holy Inquisition in Sevil, and W. Bedell, a minister of the Gospel of Jesus Christ in Suffolk,' 8vo. Lond. 1624; afterwards reprinted by Bishop Burnet in 1685, at the end of Bishop Bedell's life.

Various causes appear to have delayed the reward which Bedell's merits deserved. He was a Calvinist, says Burnet, in the matter of decrees and grace, and preferments were generally at that time bestowed upon those who held opposite opinions. His firm and faithful friend, Sir Henry Wotton, too, had lost much of his influence at court; and his other patron, Sir Thomas Jermyn, was suspected of favouring the Puritans, and was therefore out of credit. Bedell's fame, however, had reached Ireland, and, in 1627, he was unanimously elected provost of Trinity College, Dublin; a charge which he refused to undertake till the king laid his positive commands upon him, which he obeyed, and on August 16th of that year was sworn provost. He held this office about two years, when, partly by the interest of Sir Thomas Jermyn, and partly by the application of Laud, bishop of London, he was advanced to the united sees of Kilmore and Ardagh, and consecrated on the 13th Sept., 1629, at Drogheda, in St. Peter's Church, in the fifty-ninth year of his age. During his short residence at Trinity College, he did much towards the restoration of order in the college, which on his arrival he found in a very unsettled state. He also revised and improved the college statutes, and introduced prayers in Irish, and a lecture in the chapel of the university. (See *Journal of Education*, Nos. XI. XII. 'On the University of Dublin.') On going to his diocese, he found it, says Burnet, under so many disorders, that there was scarce a sound part remaining. The revenue was wasted by excessive dilapidations, and all sacred things had been exposed to sale in so sordid a manner that it was grown to a proverb. One of his cathedrals, Ardagh, was fallen down to the ground, and there was scarce enough remaining out of the revenues of both sees to support a bishop who was resolved not to supply himself by indirect and base methods. He found, too, the oppression of the ecclesiastical courts excessive, and pluralities and non-residence shamefully prevailing. All these abuses he determined to rectify; and having recovered a sufficient portion of the lands of which his sees had been dispossessed, to enable him to subsist, he set an example for the reformation of further abuses by resigning (in 1630) the bishopric of Ardagh, which he had the satisfaction to see followed in other instances.

Upon the arrival of the lord-deputy Wentworth, in 1633, Bishop Bedell fell under his displeasure on account of a petition sent up by the county of Cavan, to which the bishop had set his hand, and in which some complaints were made of, and some regulations proposed for, the army. A reconciliation, however, took place, and the lord-deputy received him into favour. He then went on cheerfully in doing what he considered his duty for the benefit of the church, and was very successful. He loved the Christian power of a bishop, without affecting either political authority or pomp. Whatever he did was so visibly for the good of his flock, that he seldom failed of being well supported by his clergy, and such as opposed him did it with visible reluctance, for he had the esteem of the good men of all parties.

In September, 1638, he convened a synod, in which he made many excellent canons that are still extant; but offence was taken at this by some who were in power, and who questioned the legality of the meeting; and some talk there was, says his biographer, of calling him in question for it, either in the star-chamber or high-commission court; but his archdeacon, Thomas Price, who was afterwards archbishop of Cashel, gave such an account of the matter as satisfied the state. Archbishop Usher is said to have advised those who moved to have the bishop brought up upon this charge, 'to let him alone, lest he should be thereby provoked to say more for himself than any of his accusers could say against him.'

Amongst other extraordinary things which he did, his biographers have agreed that there was none more worthy of remembrance than his removing his lay-chancellor, and taking upon himself to sit in his own courts, hearing causes, and retrieving thereby the jurisdiction which antiently belonged to a bishop. The chancellor upon this filed his bill in equity, and obtained a decree in chancery against the bishop, with 100*l.* costs. But, by this time, the chancellor saw so visibly the difference between the bishop's sitting in that seat and his own, that he never called for his costs, but appointed a surrogate, with orders to obey the bishop in everything, and so his lordship went on his own way.

'Our bishop,' says the writer of his life in the *Biographia Britannica*, 'was no persecutor of papists, and yet the most successful enemy they ever had; and if the other bishops had followed his example, the Protestant religion must have spread itself through every part of that country. He laboured to convert the better sort of the popish clergy, and in this he had great success. He procured the Common-Prayer, which had been translated into Irish, and caused it to be read in the cathedral in his own presence every Sunday; having himself learned that language perfectly, though he did not attempt to speak it. The New Testament had been also translated from the Greek into Irish, by William Daniel, afterwards archbishop of Tuam, but our prelate first procured the Old Testament to be translated by one King, and because the translator was ignorant of the original tongues, and did it from the English, the bishop himself revised and compared it with the Hebrew and the best translations. He caused, likewise, some of Chrysostom's and Leo's *Homilies*, in commendation of the scriptures, to be rendered both into English and Irish, that the common people might see that, in the opinion of the antient fathers, they had not only a right to read the scriptures as well as the clergy, but that it was their duty so to do. He met with great opposition in this work, from a persecution against the translator, raised without reason, and carried on with much passion by those from whom he had no cause to expect it. But, however, he got the translation finished, and would have printed it in his own house, and at his own charge, if the troubles in Ireland had not prevented it; and, as it was, his labours were not useless, for the translation escaped the hands of the rebels, and was afterwards printed at the expense of the celebrated Robert Boyle.

When the rebellion broke out in October, 1641, the bishop was so popular in his neighbourhood that he did not at first feel the violence of its effects. His was the only English house in the county of Cavan which stood unviolated, notwithstanding that it and its out-buildings, the church and its churchyard, were filled with people who had fled to him for shelter, whom by his preaching and prayers he encouraged to expect and bear the worst with patience. This went on till about the middle of December following, when the rebels, pursuant to orders they had received from the council of state at Kilkenny, required him to dismiss the people who were with him, which he refused to do, declaring that he would share the same fate with the rest. They signified to him upon this that they had orders to remove him, and subsequently seized him, his two sons, and Mr. Clogy, who had married his step-daughter, and carried them prisoners to the castle of Cloughboughter, surrounded by a deep water, where they put all but the bishop in irons. They did not suffer any of them to carry any thing with them; and the moment the bishop was gone from his house, Dr. Swiney, the popish titular bishop of Kilmore, whose brother Bishop Bedell had converted, and who himself wished to be admitted to lodge with Bishop Bedell, took possession of it and all that belonged to it, and on the Sunday following said mass in the church. After some time the rebels abated of their severity, took the irons off the prisoners, and suffered them to be as much at their ease as they could be in so wretched a place, where the ruined state of the castle exposed them to much severity of weather in a rigorous winter. While thus confined, the bishop, his sons, and Mr. Clogy, preached and prayed continually to their small afflicted congregation, and upon Christmas-day the bishop administered the sacrament to them. It was remarkable that rude and barbarous as the Irish were, they gave them no disturbance in the performance of divine service, and often told the bishop they had no quarrel with him, but that the sole cause of their confining him was his being an Englishman. After being kept in this manner for three weeks, the bishop, his two sons and Mr. Clogy, were exchanged for two of the O'Rourke's; but though it was agreed that they should be safely conducted to Dublin, the rebels would never suffer them to be carried out of the country, but sent them to the house of one Dennis Sheridan, an Irish minister and convert to the Protestant religion, to which he steadily adhered and relieved many who fled to him for protection. Notwithstanding this the Irish suffered him to live quietly amongst them on account of the great family from which he was descended. While Bishop Bedell remained there, and enjoyed some degree of health, he every Sunday read the prayers and lessons, and preached himself. The last Sunday he officiated was the 30th of January, and the day following he was taken ill. On the second day it appeared his disease was an ague, and on the fourth, apprehending a speedy change, he called for his sons and his sons' wives, spoke to them a considerable time, gave them much spiritual advice, and blessed them. Bishop Burnet (pp. 210, 216) has detailed his conversation with them. On the 7th of February, 1641-2, he breathed his last, in the seventy-first year of his age, his death being chiefly occasioned by his late imprisonment and the weight of sorrow which lay upon his mind.

As his body could not be buried as he had desired, without the new intruding bishop's leave, Mr. Clogy and Mr. Sheridan went to ask it. They found the bishop in a state of gross intoxication, and a sad change in the house; but after a little hesitation leave was granted, and on the 9th February, 1641-2, Bishop Bedell was buried, agreeably to his own direction, in the churchyard of Kilmore close to his wife's coffin. The rebels gathered their forces to pay honour to the funeral, and would have suffered Mr. Clogy to bury the bishop according to the office prescribed by the church, but it was feared the rabble might be provoked by it, and it was passed over; the Irish, however, discharged a volley of shot at the interment, and cried out in Latin, 'Requiescat in pace ultimus Anglorum:' for, says Burnet, they had often said that as they esteemed him the best of the English bishops, so he should be the last who should be left among them. Edmund Farilly, a popish priest, is said to have exclaimed at his interment, 'O sit anima mea cum Bedello.' His epitaph, as ordered by himself, was simply 'Depositum Gulielmi quondam episcopi Kilmorensis.'

The public character of Bishop Bedell did honour to his high office in the church, and his private life was perfectly consistent with the doctrines which he taught. His actions were such as rendered him beloved and esteemed while he lived, and cannot but secure the highest reverence for his memory. The country, and the times in which he lived, required such examples, and the respect paid him by the Irish sufficiently showed what might have been done among them if all, or the greater part, of the Protestant clergy had been such as he was.

The Books of the Old Testament, translated by the care and diligence of Bishop Bedell into Irish, were first published, 4to. London, 1685, with O'Domhnuill's translation of the New Testament, 4to. London, 1681, appended: both were again printed in the Irish character, 12mo. 1690. O'Domhnuill, pronounced O'Donnell, is the true Irish name of William Daniel, archbishop of Tuam, mentioned above; his translation of the New Testament was first published in Dublin in 1602. (See *Journal of Education*, No. XI.)

Some original letters of Bishop Bedell concerning the steps taken toward a reformation of religion at Venice upon occasion of the quarrel between that State and the Pope Paul V. were printed 12mo. Dublin, 1742. They were found among Archbishop Usher's manuscripts in the library of Trinity College there.

(See Bishop Burnet's *Life of Bedell*, 8vo. London, 1685; *Biogr. Britannica*, edit. 1747, vol. i. pp. 658, 664; *Character of Bishop Bedell* at the end of *Certain Discourses* by Nich. Barnard, D.D., 8vo. London, 1659.)

BEDESMAN, or **BEEDMAN**, from bede, a prayer, and that from the Anglo-Saxon bidd-an, to pray, was a common mode of signature in the time of Henry VIII. at the end of letters; as of a prayer-man, or one who prayed for another. Sir Thomas More, in writing to Cardinal Wolsey, ordinarily styles himself 'Your humble orator and most bounden beedman, Thomas More.' (See Ellis's *Orig. Letters illustr. of English Hist.* first ser. vol. i. pp. 198, 200, 202, 203, 206, 208, 210, 211.) Margaret Bryan, the governess of the Lady Elizabeth, writing to Lord Cromwell, signs herself in the same manner, 'Your dayly *bede-woman.*' (*Ibid.* second ser. vol. ii. p. 82.)

It was not out of use in Shakspeare's time, who in the 'Two Gentlemen of Verona,' act i. scene i., says—

> 'For I will be thy beadsman, Valentine.'

Valentine answers—

> 'And on a love-book pray for my success.'

BEDFORD, a borough, and the county town of Bedfordshire, situated on both sides of the river Ouse, which is navigable to the German Ocean. Bedford is forty-eight miles N.N.W. from London. Camden states the town to be of high antiquity; but doubts if it was the Lactodorum of Antoninus, as some affirm, for it does not stand on a Roman road, nor had Roman coins ever been found there. Nevertheless the plough turns up many coins in various parts of the county, and the vicinity of Shefford in particular has been remarkably productive in Roman pottery, glass, and bronze. Camden proceeds to state that he had read that the British name of the place was Lifwidur, or Lattidur; but he regards the latter as a translation of the English name—'Lettuy, in British, signifying public inns, and Lettidur, inns on a river, as Bedford, in English, beds and inns at a ford.' This account is not very satisfactory. (See *Gentleman's Magazine*, 1794, for a quotation bearing on this point from a work called *England Illustrated.*) It is generally supposed, however, that the town is the Bedicanford of the *Saxon Chronicle*. This signifies 'a fortress on a river,' a designation of which the present name seems a corruption. Bedford appears to have been the scene of a battle in 572 between the Saxon Cuthwulf and the Britons. It afterwards suffered greatly in the wars between the Saxons and the Danes, and was ultimately burned by the latter in 1010. Mention is made of a fortress or citadel built on the south side of the river by Edward the Elder; but it would seem to have been destroyed by the Danes, or was found an inadequate defence, for Paine de Beauchamp, to whom the barony was given by William Rufus, thought it necessary to build, adjoining to the town, a very strong castle, which was surrounded by a vast entrenchment of earth, as well as a lofty and thick wall. 'While this castle stood,' says Camden, 'there was no storm of civil war that did not burst upon it.' In 1137 it sustained a siege against King Stephen and his army; but accounts vary exceedingly both as to who were the defenders and what was their fate. Camden, without entering into particulars, says that Stephen took the fortress, with great slaughter; but Dugdale, who gives details and quotes antient authorities, says that the king obtained it by surrender, and granted honourable terms to the garrison. In 1216, William de Beauchamp, being then possessed of the barony of Bedford, took part with the rebellious barons, and received them as friends into the castle, which they were advancing to besiege. When, however, King John sent his favourite, Faukes de Brent, to summon the castle, it was surrendered to him within a few days, and the king gave it to him, with the barony, for his services. Faukes, having repaired and greatly strengthened his castle, for which purpose he is said to have pulled down the collegiate church of St. Paul's, presumed so far upon its impregnable character as to set all law and authority at defiance. His outrages and depredations on his less powerful neighbours were such, that in the year 1224, Martin Patershul, Thomas de Moulton, and Henry Braybrooke, the king's justices itinerant, then sitting at Dunstaple, felt it their duty to take cognizance of his proceedings, and fined him in the sum of three thousand pounds. Faukes, being greatly provoked at this, sent his brother at the head of a party of soldiers to seize the judges and bring them prisoners to Bedford. They had timely notice of his intention, and two of them escaped; but Braybrooke was taken and carried to the castle, where he was shamefully treated. The king (Henry III.), being highly incensed at this and the other outrageous conduct of De Brent, determined to bring him to punishment. He therefore marched to Bedford in person, attended by Stephen Langton, archbishop of Canterbury, and the principal peers of the realm. On this occasion the Church was so provoked by Faukes's sacrilege, that the prelates and abbots granted a voluntary aid to the king, and for every hide of their lands furnished two labourers to work the engines employed in the siege. Camden quotes from the *Chronicle* of Dunstaple a curious account of the siege, written by an eye-witness, from which it appears that the engines employed in that age for the destruction of man were little less ingenious and effective than those now in use. Faukes de Brent felt great confidence in the strength of the castle, and disputed the ground by inches; but after a vigorous resistance of sixty days, no alternative remained but to surrender at discretion. The success of the besiegers is attributed chiefly to the use of a lofty wooden castle, higher than the walls, which gave them an opportunity of observing all that passed within. Faukes himself was not in the castle when it surrendered; he took sanctuary in a church at Coventry, and, through the mediation of the bishop of Coventry, obtained the king's pardon, on condition of abjuring the realm. His brother William, the acting governor of the castle, with twenty-four knights and eighty soldiers, were hanged; but Culmo, another brother, received the king's pardon. The king, acting on the determination to uproot this 'nursery of sedition,' as Camden styles it, ordered the castle to be dismantled, and the ditches to be filled up. The barony was restored to William de Beauchamp, with permission to erect a mansion-house on the site of the castle, but with careful stipulations to prevent him from construing this into leave to build a fortress. The king's intentions as to the demolition of the castle do not seem to have been executed to the letter: for the 'ruinous castle of Bedford' is mentioned about 250 years later; and Camden speaks of its ruins as still existing in his time, overhanging the river on the east side of the town. At present not one stone of the fabric remains; but a few years ago its site might be very distinctly traced at the back of the Swan Inn. It forms a parallelogram, divided by a lane: and the site of the keep now makes an excellent bowling-green. The domain first became a dukedom when given to John, the third son of Henry IV.

Bedford is considered a borough and corporation by prescription, and is so called in all legal proceedings. The first charter on record was granted to the town by Henry II., and the last by Charles II. The corporation consists of a mayor, recorder, two bailiffs, thirteen common-councilmen, and an uncertain number of aldermen, as every one who has served the office of mayor is afterwards reputed an alderman. The manor of Bedford is vested in the corporation by virtue of antient grants, the earliest of which is that of Henry II., which subjected the burgesses in return to the payment of a fee-farm rent of 40*l.* per annum. This was afterwards raised to 46*l.*; but in the end was gradually reduced to the sum of 16*l.* 5*s.* 8*d.*, which is now payable to the representatives of persons who bought the rent of the crown. The bailiffs for the time being are lords of the manor, and have the right of fishing and taking game to the extent of the bounds, which contains a space of upwards of nine miles in circumference, comprising an area of 2200 acres. The Boundary Commissioners, in 1831, recommended no alteration of the antient limit. The town has sent two members to parliament ever since the year 1295. The right of election was determined, in 1690, to be in the burgesses, freemen, and the inhabitant householders not receiving alms. Under this franchise, the greatest number of electors polled in the first thirty years of this century was 914. In 1831 the borough of Bedford contained 1446 houses, with a population of 6959 persons, of whom 3757 were females. The neighbourhood of Bedford being very productive in wheat and barley, much business is done there in the corn trade: there is also a very considerable trade, by means of the Ouse, between Bedford and Lynn, in malt, coals, timber, and iron. Lace-making affords employment to a great number of poor females and children. The principal market-day is Saturday, when the average sale of wheat is about 600 quarters; there was also a Tuesday market, but it has been discontinued, and one on Monday for the sale of pigs instituted. Fairs are held on the first Tuesday in Lent, April 21, July 6, August 21, October 12, November 17, and December 19. That held in October is of the most importance, and is called the Statute Fair; that in April is also a pleasure fair; the others are only for the sale of cattle.

The town of Bedford lies nearly in the centre of the borough, with a broad belt of pasture-land on every side. It has been greatly improved within the present century under the authority of an act of parliament for rebuilding the bridge, and paving, lighting, and watching the town it is still increasing, and apparently improving; many new houses have been recently built, especially towards the north-west. The communication between the parts of the town separated by the Ouse is by a handsome stone bridge of five arches, which was commenced in 1811, on the site of an old one of seven arches, which was popularly considered to have been built with the materials of the castle demolished by Henry III., but which Grose understood to have been erected in the reign of Queen Mary out of the ruins of St. Dunstan's church, which stood on the south side of the bridge. The town is lighted by gas.

Bedford is divided into five parishes, with as many churches. Those of St. Paul, St. Peter, and St. Cuthbert, are on the north side of the river, and those of St. Mary and St. John the Baptist on the south. The living of St. Paul's is a discharged vicarage, endowed with a portion of the great tithes, and valued at 10*l.* in the king's books: patron, Lord Carteret. This church is the principal architectural ornament of the town. It is large, with a nave and south aisle divided by early English or early decorated piers and arches. The west door, and the tower and octagonal spire are of the decorated character. The windows are mostly perpendicular; all the tracery, except of one or two, had been cut away, but has lately been in part restored. There is one tomb, if not more, with brasses, in the church: the old pulpit is of stone, ornamented with gilt tracery on a blue ground; but it has been removed to the chancel, and a more convenient one of oak substituted. The livings of St. Peter and St. Cuthbert are both rectories in the gift of the crown: the former is rated in the king's books at 11*l.* 13*s.* 1*d.*, and the latter at 5*l.* 9*s.* 4½*d.* The church of St. Peter has a curious old Norman door, a fine antique font, and some curious stained glass in the windows. The living of St. Mary, on the south side of the river, is a rectory, charged in the king's books at 11*l.* 4*s.* 9*d.*, patron, the Bishop of Lincoln. The church is small, with a plain square tower, and with nave and aisles mostly in the perpendicular style. The living of St. John is a rectory, not in charge, of which the corporation is patron. The tower is in the perpendicular style, but the windows and the interior of the church have been modernized. It was formerly an hospital, and contained a master and 60 brethren.

It is calculated that about half the inhabitants of Bedford are dissenters. There are, accordingly, several chapels belonging to the Independents, the Methodists, the Baptists, and the United Brethren (Moravians): there is also a small synagogue for the Jews. The old Independent meeting-house, in Mill Lane, was established in 1650, under the ministry of John Gifford, who had been a major in the king's army. John Bunyan, the celebrated author of the *Pilgrim's Progress*, was ordained co-pastor of this congregation with Samuel Fenn, in 1671, and continued to fill that situation till his death, in 1688. His memory is still greatly venerated by the congregation; and the chair in which he used to sit is preserved in the vestry as a sort of relic. The United Brethren have had an establishment here ever since 1745; but the chapel was not built till 1751. Adjoining to it is the house for the single sisters, who live in community. They chiefly employ themselves in embroidering muslin and cambric. The Moravians have also a female boarding-school attached to their establishment.

The shire-hall, in which the assizes and sessions are held, is a good stone building, erected in the year 1753. In the same part of the town a new county gaol was erected in 1801, towards the building of which the elder Mr. Whitbread left a legacy of 500*l.* The prisoners sleep in separate cells; and the system of tread-mill labour and silence is enforced on the convicts. In this gaol the town-prisoners are now maintained by contract. The house of industry is a large and handsome brick building, completed in 1796. It is fitted up with every useful accommodation, and great attention is paid to the health and comfort of the inmates; but, say the Lysons, 'in point of economical contrivance, perhaps it is inferior to some buildings of a like nature.' A handsome building, erecting by the subscription of shareholders, is now (1835) in progress, and is intended to contain a public library, news-room, ball-room, billiard-rooms, a savings' bank, and rooms for lectures, &c.

There is, perhaps, no English town of similar extent, equal to Bedford in the variety and magnitude of its charitable and educational establishments. Besides the fifty-eight alms-houses under Sir William Harpur's charity, houses for eight poor persons were built by T. Christie, Esq.

who bequeathed them a shilling each weekly, payable out of the great tithes of St. Paul's. The county possesses a spacious lunatic asylum in St. Mary's parish, capable of accommodating sixty-six patients. It was opened in 1812, being the first county institution of the kind erected under the act of parliament to that effect. Private patients pay from one to three guineas per week; and paupers from nine to twelve shillings, the deficiency being made up from the funds of the county treasury. An unusual degree of liberty is allowed to the unfortunate inmates through the good management of the superintendent.

The general infirmary is also a noble building, situated, like the former, at a convenient distance from the town. It was erected in 1803, chiefly from funds bequeathed by Samuel Whitbread, Esq. It was originally intended for fifty patients, but has since been enlarged, and continues to be supported by subscription. The Marquess of Tavistock, after a contested election for the county, in which he refused to expend a shilling, gave towards enlarging the infirmary, the sum (2000*l.*) which would probably have been expended in treating the electors. In cases of need, the surrounding counties are allowed to participate in the benefits of this institution. A charity school for twenty children of the parishes of St. Paul and St. Cuthbert, was founded before 1737, by the Rev. Mr. Leith and others. Bedford is, however, chiefly indebted for its charities to Sir William Harpur, alderman of London, who, in the reign of Edward VI., founded a free-school for the instruction of the children of the town, in grammar and good manners. The donor conveyed to the corporation thirteen acres of land in the parish of St. Andrew, Holborn (London), for the support of this school, and for portioning poor maidens of the town; the overplus, if any, to be given in alms to the poor. The land having been let on building leases, Lamb's Conduit Street, Harpur Street, Theobald's Road, Bedford Street, Bedford Row, New North Street, East Street, Green Street, and some smaller streets, were built upon it; and thus the property has gradually risen in value from below 150*l.* a year to upwards of 13,500*l.* which was its amount in 1833. A property thus greatly increased in value has several times required the interposition of Parliament to regulate its distribution. It at present supports a grammar-school, containing about eighty boys on the foundation, and as many private boarders; a commercial school, containing 100 to 150 boys; and a national-school, containing 350 boys: in the latter 170 girls are received on half-holidays; a regular girls' school, and an infant school are about to be added. Besides which, the girls in the hospital for poor children, another branch of the charity, are taught household duties, needle-work, reading and writing, by the mistress. In these schools provision is made for the gratuitous instruction of the children of all resident parishioners of the five parishes of the town of Bedford. Books, &c., are gratuitously supplied. About twenty-five boys in the national-school are clothed from a fund left by Alderman Newton, of Leicester. A new building, for the English and national schools, containing large school-rooms, a blue-coat hospital, for the board and education of boys and girls, and a committee-room, clerk's house, &c., have lately been erected in the Tudor style of architecture, by the trustees of Sir W. Harpur's charity.

Part of the income from Sir W. Harpur's charity is also appropriated to the support of alms-houses, to the portioning young women in marriage, and to other benevolent objects. The proportions in which the income is distributed will be better understood by reference to the following extract from the account given of the expenditure for the year, from October 1833, to October 1834:—

	£	s.	d.
By Schools, viz.			
„ Grammar	1581	15	5
„ English	673	7	1
„ Preparatory, commercial .	105	14	11
„ National	269	9	10
	2630	7	3
Exhibitions	640	0	0
Marriage portions	500	0	0
Hospital for children . . .	670	16	0
Apprentices at binding .	712	10	0
„ „ at half time . .	623	0	0
Donations on going out to service .	84	0	0
„ to apprentices after service	290	0	0
Carried forward . .	6,150	13	3
Brought forward . .	£6,150	13	3
Almshouses	2208	18	6
Distributed to the poor . .	500	0	0
Salaries	580	0	0
Repairs, fittings, and furniture for new hospital . . .	555	19	8
New schools and other buildings	4156	2	6
Books, stationery, printing, & stamps	47	3	6
Taxes, insurance, and miscellaneous	630	9	10
Law expenses	869	17	6
Letting estates, &c. . . .	664	8	2
	16,363	12	11

The grammar-school now contains 76 town boys, and has been brought to a high degree of excellence, through the exertions of the present head-master, the Rev. Dr. Brereton, whose salary is 250*l.* per annum, with a house tax free, coals and candles, together with five guineas from each town boy (paid out of the school fund), and the privilege of taking boarders, at present (1835) amounting to 70. The second master has a salary of 140*l.*, and four guineas with every town boy on the foundation, with a house, &c., as above. A third master has this year been added, with a salary of 150*l.* per annum. The mathematical master has a salary of 100*l.*, and three guineas with every town boy learning mathematics. The salary of the writing master is 80*l.* per annum. The warden and fellows of New College, Oxford, are visitors of the school, and appoint the master and second master. The exhibitions are eight in number, of the value of 80*l.* per annum each; and are designed for boys educated in the school to assist them in completing their education at Oxford, Cambridge, or Dublin. Six of the exhibitions are holden exclusively by town boys; but the examiners from New College are at liberty, as they see fit, to bestow the other two on the most deserving of boarders.

(Gough's *Camden's Britannia*; Lysons's *Magna Britannia*; Grose's *Antiquities*; Brayley and Britton's *Beauties of England and Wales*; Rickman's *Essay on Gothic Architecture*; *Boundary Reports*; *Accounts of the Bedford Charity for* 1831; *Reports on Charities*; *Communications from Bedford, &c.*)

BEDFORD, DUKE OF, Regent of France. John Plantagenet, Duke of Bedford, was the third son of Henry IV. and Mary Bohun, daughter of the Earl of Hereford. He was knighted at the coronation of his father, October 1399, 'by bathing and other sacred ceremonies,' being at the time not quite ten years old. He was created Duke of Bedford in the second year of the reign of his brother, Henry V., 'at the request of the Lords and Commons.' (*Rolls of Parliament*, quoted in Hallam's *Middle Ages*, vol. iii. p. 193.) During the lifetime of his father he was governor of Berwick-upon-Tweed, and warden of the Scottish Marshes; and during his brother's absence in France, he was governor and commander-in-chief of the forces in England.

Henry V. died after a short illness, in 1422, at the early age of thirty-six years, leaving an infant successor only nine months old, with the disputed honour of king of France as a portion of his inheritance. On his death-bed he expressed his earnest desire, that Bedford should 'take up the administration of the affairs of France' during the minority of the young king,—leaving the less difficult administration of affairs at home to the conduct of his younger brother Gloucester, under the title of Protector. In love of martial glory, and in military talents, the Duke of Bedford was little, if at all, inferior to the deceased hero. He was, after the death of Henry, considered, says Rapin, in a portrait, which though highly coloured, has been implicitly adopted by Hume, to be the 'most accomplished prince in Europe. Wise, judicious, of great valour, solidity, and penetration, master of his passions, and of a genius superior to all employed by him; he seemed born for a throne, though Providence had ranked him among subjects. To all these qualities he added a majestic stateliness, which became his birth and high rank in France and England. But this he never carried beyond what was necessary to command a due respect and regard for his person and authority. To sum up his character in a word, he was perfectly like the late king his brother, and in all his actions took him for his pattern.' No greater proof, indeed, of the high estimation in which he was held by his contemporaries need be given, than the circumstance that the Lords and Commons, in contravention of the late king's testament, passed an act, declaring, under certain well-defined limitations, the Duke of Bedford, 'or, in his absence beyond seas,' the Duke of Gloucester, to be protector and defender of the kingdom and the English church, and the king's chief counsellor, during the minority of the young king. The proceedings of the parliament on this occasion may be referred to as of great constitutional importance; furnishing, as they do, the first great constitutional precedent of the right of parliament, in contradistinction to the king, and in this instance, in contravention to the king's will, to name a regent during the minority of his successor; and the equally decisive constitutional precedent, of the right and power of parliament to fix the limitations of that regent's exercise of the prerogative. (See Hallam's *Middle Ages*, vol. iii. p. 276, and *Parl. Hist.* vol. i.)

By the treaty of Troyes, which was concluded between the court of France and Henry V., on the 21st May, 1420, the English king was declared to be regent of France and next heir to the French crown. On his death-bed, Henry, anxious to secure this splendid inheritance for his infant son, earnestly impressed upon Bedford and his council the necessity of cultivating diligently the friendship of the Duke of Burgundy, and to offer to him in the first place the regency of France. This injunction Bedford obeyed to the letter. On the death of Henry, he immediately offered the regency to the Duke of Burgundy; and on his refusal, and at the apparent solicitation of the French king, accepted the office himself. He conferred with Burgundy as to the best mode of observing the terms of the treaty of Troyes, and obtained from him the warmest assurances of good faith as to its observance. He also obtained the adhesion of the Duke of Bretagne to that treaty, and at a meeting which he brought about between that prince, the Duke of Burgundy, and himself, at Amiens, in April, 1423, he prevailed upon them to affirm their professions of friendship with an oath, by which they swore to love each other as brothers, and to afford mutual aid against the attack of enemies. To make their union the more binding, Bedford married a sister of the Duke of Burgundy, and the Duke of Bretagne married another. Bedford led his young bride to Paris, which he had made the centre of his government, and vigorously applied himself to the consolidation of his infant nephew's inheritance.

Had Henry lived a few months longer, he would have been, in virtue of the treaty of Troyes, and the splendour and extent of his conquests, declared king of France. Charles VI., distinguished by the epithet of the 'Well Beloved,' with whom he had concluded that treaty, survived 'his dear son and heir' but a few months; and at his funeral, Bedford had his infant nephew Henry VI. proclaimed 'Our Sovereign Lord, King of France and England.' The south of France, however, was still in possession of the Dauphin and his party, who summoned all the adherents of the antient monarchy to the standard, which that prince, as Charles VII., had raised at Chartres, the place of his coronation. All the country to the north of the Loire may be said to have been in the hands of the English; while every province to the south of that river, with the exception of Gascony, warmly espoused the cause of the heir of their native kings. The history of France accordingly for many years presents a series of battles and sieges, which ended in the expulsion of the English from all their conquests in the French territory.

In the first year of the war, Charles VII. received a great defeat at Crevant. A still more signal disaster befell him next year at the battle of Verneuil (16th August, 1424), at which Bedford commanded in person, and displayed all the qualities of a great general. The French monarchy was only saved from ruin, after this decisive battle, by the conduct of the Duke of Gloucester, Bedford's brother, which deprived the latter of the aid of the forces of the Duke of Burgundy, to which he was mainly indebted for the victory at Verneuil. In his capacity of Regent of France, Bedford was thwarted in every measure which tended to effect the entire subjugation of that country, either by the indiscreet ambition of his brother, or the jealous and parsimonious policy of the English parliament. The administration of affairs in England turned altogether upon the intrigues and contests of two opposite parties, one headed by Cardinal Beaufort [see Beaufort, Cardinal], the other by the Duke of Gloucester; and as the former was the more powerful, and opposed to the war policy of the latter, the supplies of men and money for the prosecution of the war in France were doled out with so frugal a hand, that the offensive operations of the Duke of Bedford were confined to besieging some towns still held by the French king in the northern provinces; and it was only by the fraudulent connivance of Beaufort, for which he received a bribe of 1000 marks, that a force of 5500 soldiers, which he had raised for a crusade against the Hussites in Bohemia, and which were on their way through France under the military command of the Cardinal, were sent as a reinforcement to the English forces, so as to enable the Regent to attempt to check the disasters that ensued from raising the siege of Orleans.

The circumstances which deprived the Duke of Bedford of the aid of the Burgundian forces were these: Gloucester had married Jacqueline, heiress of Hainault, Holland, Zealand, and Friesland. She had previously been married to the Duke of Brabant, first cousin of the Duke of Burgundy, but despising his tame spirit she eloped from him, and sought an asylum in England. Brabant, however, kept possession of her territorial dominions, which Gloucester claimed and sought to recover by force. For this purpose he entered Hainault with 5000 English men-at-arms, besides other forces, shortly after the decisive defeat of the French king at Verneuil. The Duke of Burgundy hastened with his troops to the aid of his kinsman; and Charles VII. was saved from ruin.

The siege of Orleans, memorable as one of the most extraordinary incidents in history, was commenced on the 12th of October, 1428. The fortunes of Charles hung upon the issue, and he was in despair. He was saved by the assistance of Joan of Arc, and the English raised the siege of Orleans. [See Arc, Joan of.] This memorable effect of superstition—of supernatural confidence on the one side, and supernatural awe on the other—was followed by a succession of disasters to the English arms, which, while they deeply afflicted, tasked all the energies of the Duke of Bedford. With a force drawn from the garrison towns of Normandy, and strengthened, as we have stated, by the troops which Cardinal Beaufort was leading to Bohemia, he marched against Charles, who had just been crowned at Rheims, but failed in provoking him to risk a battle. The Regent then challenged Charles to single combat—denounced him as deluding the people with the impostures of 'a woman of a disorderly and infamous life and dissolute manners, and dressed in the clothes of a man;' and offered to fight him hand to hand, in order that the people might judge by the issue whose claim was favoured by Heaven. Charles took no notice of the letter, and moved steadily upon Paris. The Regent hastened after him, and after breaking the spell of the maid's charm, by repulsing her from the walls of Paris, compelled the French army to fall back upon the Loire. After various skirmishes, defeats, and successes, the maid was captured, when attempting a desperate sally from Compiègne, on the 23rd May, 1430.

With the subsequent fate of the Maid of Orleans, we have here no further concern, than to state, that the Regent joined eagerly in bringing her to the stake.

In 1432 the Duchess of Bedford, sister to the Duke of Burgundy, and the great cement of their friendship, died. Within four months after the Regent married Jacquetta, daughter of the Earl of St. Pol, a vassal of the Duke of Burgundy. The precipitateness and secrecy, as well as inferiority of the marriage, gave great offence to the Duke of Burgundy. Cardinal Beaufort laboured to reconcile the two princes; but as both were haughty and unbending, the attempt altogether failed. In this temper of mind, and the war having languished for upwards of two years, overtures were made on the part of Charles to Burgundy; and the result was a treaty of peace between them. This treaty was the death-blow to the English interest in France, and so affected the Regent that he died of mortification and anxiety while it was pending, at Rouen, on the 13th September, 1435, a fortnight before the treaty between Charles and the Duke of Burgundy was formally signed. An anecdote is told with respect to his tomb at Rouen, which is worth notice, as illustrative of the esteem in which he was held by his contemporaries. We shall quote it in the words of Rapin. 'Louis XI., son of Charles VII., being one day in the church at Rouen, and looking upon the Duke of Bedford's tomb, a certain lord of his retinue advised him to demolish that standing monument of the dishonour of the French. "No," replied the king, "let the ashes of a prince rest in peace, who, were he alive, would make the boldest of us tremble. I rather wish a more stately monument were raised to his honour." '

Like most of the immediate descendants of John of Gaunt, the Duke of Bedford was a patron of literature. He purchased and transported to London the Royal Library of Paris, which Charles V. had increased to 'nine hundred volumes:' and his brother Gloucester presented 600 books to the University of Oxford, 120 of which cost £1000. (Hallam's *Middle Ages*, iii., p. 582.) Gloucester indeed was the English Mæcenas of his time, a circumstance which, no doubt, influenced Shakspeare in painting him as the 'Good Duke Humphrey,' and in blackening the character of his rival Beaufort.

(Monstrelet's *Chronicles*, and Rapin's *History*, which is particularly full and accurate with regard to the transactions in the reigns of the Lancasterian princes, may be consulted with advantage for the public life of the Duke of Bedford. Dugdale's *Baronage* also points to several events in his career.)

BEDFORD LEVEL. This district comprehends nearly the whole of a large tract of flat land, extending into the six counties of Northampton, Huntingdon, Cambridge, Lincoln, Norfolk, and Suffolk. It is bounded on the north-east by the German Ocean, and on all other sides by high lands, which encompass it in the form of a horse-shoe. Its length from Toynton in Lincolnshire, to Milton in Cambridgeshire, is sixty miles, and its breadth from Peterborough in Northamptonshire, to Brandon in Suffolk, is nearly forty miles. The tract thus described, includes that part of the south-east division of Lincolnshire called Holland, which consists of flat, low, marshy land, and is supposed to have been reclaimed from the sea by embankments made during the Roman occupation of Britain.

The Bedford Level extends to the north only as far as Tydd-St.-Giles; its length thence to Milton, on the south, is about thirty-three miles. The boundary line is irregular; its course on the south, from Brandon to Peterborough, may be traced by Mildenhall to a short distance north of Newmarket, then by Milton in Cambridgeshire, to Earith, on the borders of Huntingdonshire, Ramsey, Woodwalton, and Yaxley, in the latter county. Returning from Peterborough to Brandon, on the north, the boundary line runs by Peakirk, six miles north of Peterborough, Crowland, Whaplode Drove Chapelry, Parson Drove, Guyhirn, Salter's Lode on the Ouse, about ten miles south of Lynn, and thence by Methwold to Brandon.

The Level is divided into three parts, which are distinguished as the North, the Middle, and the South Levels. The North Level lies between the rivers Welland and Nene; the Middle Level between the Nene and the Old Bedford Rivers; and the South Level extends from the Old Bedford River to Stoke, Feltwell, and Mildenhall. The area of these marshes has been variously stated. Among the authors who originally wrote on the subject, Sir Jonas Moore calls it 300,000 acres, Colonel Dodson and others estimate it at 400,000; an actual survey made in 1605, and given in to Government upon oath, states it to be 307,442 acres; but according to the Lysons, subsequent surveys have shown it to be 400,000 acres.

Peterborough Fen, which is the part of the Level that runs into Northamptonshire, extends between Peterborough and Crowland, and contains between 8000 and 9000 acres. One-seventh part of the Level is in Huntingdonshire. The whole of the Isle of Ely, which forms the north division of Cambridgeshire, and a few parishes in the same county, which lie south-east of the isle, are included in the Level. Norfolk contains 63,000, and Suffolk 30,000 acres of the Level; the remainder is in the south-east division of Lincolnshire.

This tract of land has, in the course of some centuries, undergone remarkable changes. There is abundant evidence to prove that it was once a forest, and that it then became a stagnant morass. It is now, through human industry, converted into rich pastures and fertile corn-fields. From facts which will be stated further on, it does not admit of doubt that this country was once dry land, at a level much below the present surface; and there is reason for supposing that, at the time of the invasion of Britain by the Romans, it consisted of one of those great forests to which the Britons fled for shelter against their invaders. It was the policy of the Romans to cut down and destroy those strong holds of the natives, who were compelled by their conquerors to clear the woods, and embank the fens. (Tacit. *Agric.* 31.) The Emperor Severus, in the beginning of the third century of our æra, caused roads to be made through these marshes. One of these roads, 25 miles in length, extended from Peterborough to Denver in Norfolk; it was 60 feet wide, and composed of gravel three feet deep. This causeway is now covered with soil from three to five feet in thickness. Henry of Huntingdon, who wrote in the middle of the twelfth century, describes this fenny country as being 'very pleasant and agreeable to the eye, watered by many rivers which run through, diversified with many large and small lakes, and adorned with many woods and islands.' William of Malmesbury, who lived about the same period, described the Lordship of Thorney as abounding in lofty trees, fruitful vines, and productive orchards, and having no waste land in any part. He also expressed great admiration of the works of art found in the same place. 'What shall I say,' he writes, 'of the beautiful buildings which it is so wonderful to see the ground amidst those fens to bear?'

Up to the thirteenth century, the waters usually flowed in their natural channels, and the surrounding country was either under tillage or in pasturage.

According to Dugdale, historians who were contemporary with the event, have recorded, that in 1236, on the morrow after Martinmas day, and for the space of eight days after, the wind raged so violently, that the sea rose much higher than usual, broke in at Wisbeach, and other places of the district, so that many people and cattle, together with numerous small craft, were destroyed, and the surviving inhabitants reduced to great distress. After an interval of seventeen years, a similar accident occurred, and on this occasion an order was issued by the king, requiring the inhabitants to repair the banks. This work appears to have been inefficiently performed, for within a few years the sea-banks were again destroyed. Subsequent embankments were improperly made, either through ignorance, or for the benefit of one part to the injury of all the rest. An instance of this kind occurred in the reign of Edward I., when Walter de Langton, bishop of Lichfield, diverted the course of the Nene, and obstructed the navigation, in order that he might drain his own manor of Coldham. Many years afterwards the bishop's representatives were compelled to destroy the dams which he had constructed to the injury of others. From this, and other causes, the waters from the uplands were prevented from discharging themselves into the sea, and this extent of land was at length reduced to the state of a morass. For a long period the greater part of the district was composed of an unhealthy stagnation of putrid and muddy waters, which in some places stood from ten to twenty feet deep. In those few parts where the earth was not covered with water, it was spongy and boggy. The inhabitants of the Fens, and the towns in their neighbourhood, could only have communication by means of boats, and this with some difficulty at all times, in consequence of the sedge and slime with which the ground was covered. In the winter, when there was ice, yet not sufficiently hard to admit of traffic on its surface, the inhabitants were completely isolated, and 'could hardly get help of food for soul or body.'

Evidence has everywhere been found below the actual surface not only of the presence of former vegetation, but to show that these places had previously been inhabited, and that they were suddenly overwhelmed by some violent cause. In digging near Thorney, Lynn, and many other places, trees of large size were found buried in the moss, and lying near their roots, which still remained as they grew, in firm earth beneath the moss. In the year 1764, while digging a little north of Boston (not in the Level, but in a continuation of the fenny district), roots of trees were found in the firm earth, eighteen feet below the then pasturage surface. About a mile west of Magdalen Bridge, over the Ouse, in Marshland, Norfolk, furze bushes and nut trees were found pressed flat down seventeen feet below the surface, with nuts still sound lying by them. In the process of excavating a pool at the edge of Conington Down, Huntingdonshire, in the beginning of the seventeenth century, the skeleton of a large sea fish was found at a great depth below the surface. When in pursuance of the first project for draining these fens, the channel of the Wisbeach river was deepened in 1635 eight feet below the then bottom, a hard stony bottom was discovered, on which were several boats covered with silt. While digging a drain at Whittlesea Moor, a perfect soil was found at the depth of eight feet, with swaths of grass lying upon it just as they were mowed. At Shirbeck sluice, near Boston, a smith's forge was found buried sixteen feet deep; the remains of several antient tan-vats were also found, and a large quantity of horns; there were also some soles of shoes of a peculiar shape, sharp-pointed, and of the fashion which prevailed in the reign of Richard II. At the setting down of a new sluice a little beneath Magdalen fall, half a mile from Magdalen bridge, on the marsh side, and sixteen feet deep in the earth, a cart-wheel and a flat stone about eight feet long were found. Not far from that spot the remains of a church were discovered, about eight feet below the surface; and it is stated by Dugdale that at Wigenhall St. Germans, the floor of the church is seven feet lower than high-water mark of the Ouse: which river, as it runs by the churchyard, is kept by a strong bank from inundating the country.

The principal rivers or drains, which formerly passed through this Level, were eight in number: the Glen, the Welland, the Nene, the Ouse, the Cam, the Mildenhall or Lark, the Brandon or Little Ouse, and the Stoke.

The Glen is a small stream which rises in the south of Lincolnshire, and taking first a S.S.E. and afterwards a N.E. course, falls into the Welland on its left bank, near its mouth. The Welland comes from the S.W. to Market Deeping, continues thence a short distance to the east, and then takes a N.E. course until it joins the Fossdike Wash near Fossdike. The Nene passes by Peterborough, continues thence to Wisbeach, and falls into the Sutton Washway. This river has at different times had its channel so altered and diverted from its original course by numerous cuts, that it is now scarcely possible to trace the line of its natural bed. The Wisbeach river, or Old Nene, which issues from Ramsay Mere, is a branch of this river.

The Ouse passes by St. Ives and Earith, after which it takes an irregular winding course, first east and then nearly north, till it falls into the Wash at Lynn Regis in Norfolk: the Cam, the Lark, and the Little Ouse fall into it on its east bank.

It thus appears that there are three main outlets for the waters of this Level. These have constantly been liable to have their mouths choked up by loose sand thrown up by the tides.

The Level receives the waters of the whole or parts of nine counties from the uplands, and the whole tract being flat, with little or no descent, it has hitherto been a matter of difficulty to provide a sufficient outfall so that the waters may reach the sea without overflowing the country.

The practicability of draining this great morass seems first to have been entertained in 1436, when the attention of many wealthy persons was turned towards the subject. Embankments were made, and ditches were cut at a vast expense, but the next winter proving wet and tempestuous, the Ouse, swollen by its tributaries into a torrent, swept away the barriers, and reduced the whole country to its former condition. These works having been thought perfectly secure, people were led to doubt the possibility of effectually draining the marshes, and the practicability of the undertaking became the subject of much curious controversy.

In the reign of Henry VII. Bishop Moreton made an attempt to drain the North Level and the northern parts of the Middle Level by means of a cut, called Moreton's Leame, which extended from Peterborough to Guyhirn, and is now considered part of the Nene: this cut was forty feet wide, and navigable. The earth of which the embankments were made was loose and sandy, so that they crumbled away. Another attempt was made in the reign of Elizabeth, and a third in the time of her successor; but nothing effectual was done until 1634, in the reign of Charles I., when another attempt to drain these fens was made by Francis Earl of Bedford, and it was in compliment to this nobleman that the tract reclaimed has been named the Bedford Level.

The lordship of Thorney, containing 18,000 acres, was the property of the Earl, and except a hillock upon which the abbey had been built, the whole of this tract was under water. The wish to reclaim this land induced him to embark in the undertaking. As a compensation for the risk and expense, he stipulated that he and his partners in the work should receive as payment 95,000 acres of the reclaimed land. Under this condition a charter was granted to the adventurers, and the work was partially accomplished in the course of three years, at an outlay of 100,000*l*. A cut, now called the Old Bedford River, was made from Earith, communicating with the Ouse at Salter's Lode, near Denver in Norfolk: this river is seventy feet wide, and twenty-one miles long. The other drains then made were Sam's Cut, from Feltwell to the Ouse near Denver, twenty feet wide, and about six miles long: Bevil's Leam, now known as Bevil's River, from Whittlesea Mere to Guyhirn, forty feet wide, and ten miles long: Moreton's Leam was repaired and embanked anew: Peakirk drain, from Peakirk to Guyhirn, seventeen feet wide, and ten miles long. South-eau drain, from Crowland to Clows Cross, and thence the Shire drain to the Nene, six miles below Wisbeach, being antient drains, were enlarged. A small cut was also made from the Lark to the Ouse. Four sluices were made; two at Tydd, one at Wisbeach, and the fourth at Salter's Lode, to keep out the tide.

These embankments also proved defective, in consequence of the loose nature of the earth of which they were formed; and the state of the country, owing to the civil wars, being unfavourable for the prosecution of such projects, the whole tract was again suffered to lie waste till 1649, when William, the son of Francis Earl of Bedford, agreed to make another effort to reclaim the level upon the same conditions. The sum of 300,000*l*. was then laid out in draining, embanking, &c., and with more success than before; the 95,000 acres were allotted to the undertakers, but the sum they had expended on the work was greater than the worth of the land which they received. The New Bedford River, which is 100 feet wide, was cut on the occasion last mentioned: it runs at a short distance from, and nearly parallel to, the Old Bedford River.

A regular system was now established for preserving the reclaimed land, and for improving the draining. A royal charter was granted in 1664, by which the undertakers for the draining were incorporated, and regulations were framed for the management of the 95,000 acres allotted. This corporation has since been kept up, and consists of a governor, six bailiffs, twenty conservators, and a commonalty. The corporation is empowered to impose and levy taxes for the preservation of its land, and for upholding the ways, passages, rivers, cuts, drains, banks, &c. throughout the Level, which are also the property of the corporation. The governor and bailiffs must each possess at least 400 acres of the land granted to the corporation to qualify them for holding those offices. The qualification requisite for the conservators is 200 acres: such of the commonalty as possess each 100 acres are allowed to have a voice in the election of the officers of the corporation.

At the original allotment of the 95,000 acres, the adventurers received assignments proportioned to the sums which each had contributed; so that the whole assignment is not held in common, but each owner holds his allotment or purchase subject to the laws and restrictions of the corporation. At the time the charter was granted by Charles II., that king reserved 12,000 acres for himself out of the 95,000 acres; but this proportion was subject to the same management as the rest of the allotment.

Various means have been adopted for the more perfect draining of these marshes, but until within the last few years the subject has not been well understood. Instead of making a few large and deep channels through which the water would easily find an outfall, numerous small cuts were made, requiring, to produce the same effect, a much greater inclination than would have been requisite for larger channels. It would be useless to enumerate all these small cuts. The channels which it is necessary to mention are,—the sixteen feet drain, which runs about four miles west of and nearly parallel to Old Bedford River, is eight miles long; this terminates in the *forty feet drain*, which runs from Old Bedford River to Ramsay Mere. The Carr Dike, which is a Roman work, runs from Peterborough to Peakirk. The Counter Drain runs parallel to and near the Nene, from Peterborough to Guyhirn. The Cats' Water communicates with the counter drain near Peterborough, on the one side, and with the Old South-eau drain on the other side. The Cats' Water was a very old drain choked by earth and weeds, and served neither for the purpose of draining nor navigation. It was cleared out and repaired by the Earl of Bedford and his Company, with many smaller drains which had been equally neglected. A great part of Carr Dike is now disused, and the Cats' Water is little more than a boundary fence to Thorney: no part of either is navigable at present. The Well Creek runs from Salter's Lode to Outwell, and consists of two cuts forming an obtuse angle with one another.

The original navigation from Lynn Regis to Standground Sluice, near Peterborough, was carried from Salter's Lode Sluice, through Well Creek and the Nene, to Flood's Ferry, and thence through Ramsay, Ugg, and Whittlesea Meres, a passage at all times tedious, and often difficult and dangerous. In 1754 an act was passed for improving this navigation, and a new line was made from Salter's Lode through Well Creek to the town of Outwell, thence through the Old Nene or Wisbeach River by Upwell and March to Flood's Ferry, and thence to Ramsay High Lode. A cut was also then made from Outwell to Wisbeach, and the navigation of the Nene from Wisbeach to Peterborough was improved, by which means a safe navigation was provided from Lynn Regis to Peterborough by Outwell, Wisbeach, and Guyhirn.

By far the greatest and most effectual modern improvement in the draining and navigation of these fens has been completed under acts passed in 1827 and 1829 for improving the outfall of the river Nene, for the drainage of the lands discharging their waters into the Wisbeach River, for improving the navigation of the Wisbeach River from the upper end of Kinderley's Cut to the sea, and for embanking the salt marshes lying between Kinderley's Cut and the sea. The act of 1829 amended and enlarged the powers granted in 1827. Under these acts a new tidal channel has been cut for the discharge of the waters of the Nene into the sea. This channel begins at Kinderley's Cut, near Buckworth Sluice, about six miles below Wisbeach, and extends to Crabhole in Lincolnshire, a distance of six miles and a half; thence the river has shaped for itself a natural channel, about a mile and a half long, into the Wash. The excavation of this channel was begun in 1827, and finished in June, 1830, when the old channel was closed, and the water rushing into the new one carried away the earth at the bottom with so much force as to give to the channel ten or twelve feet greater depth than had already been given by manual labour. The sides of the channel were then secured by a thick lining of stones. The whole course of this new cut is through quicksands of the lightest and least cohesive nature of any on this part of the coast. The width of the channel at bottom is 140 feet at Kinderley's Cut, and at about half its length, at Scate's Corner, 200 feet. The surface width varies from 200 to 300 feet. The depth, measuring from the surface of the adjacent land to the bed of the river, is about 24 feet throughout. The spring-tide rises about 22 feet at the end nearest to the sea, and 18 feet at the junction with Kinderley's Cut. A bridge has been thrown over this channel at Sutton Wash, about eight miles below Wisbeach, and an embankment has been made a mile and a half in length across the sands, forming a new line of road between Norfolk and Lincolnshire, in place of the former dangerous ford through a tidal æstuary, or the very circuitous route through Wisbeach.

Nearly 1500 acres of marsh lands have been reclaimed from the sea, by embankments made under the acts of 1827 and 1829, and are now (1835) nearly all under cultivation: about 6000 acres more are rapidly coming to a fit state for inclosure.

The old channel afforded only a tedious and dangerous passage, and that too at spring tides, and with a favourable wind to vessels of about sixty tons burden, drawing about six feet water. The new channel affords a safe and uninterrupted communication between Wisbeach and the sea at all variations of the tide, and in all weathers, for vessels of the above burden, and at spring tides for ships of much larger dimensions.

Wisbeach is the emporium for a large part of the counties of Cambridge, Norfolk, Lincoln, and Northampton, and the advantages of this improved communication are consequently very great; but by far the most important effects which are expected to follow from this extensive undertaking will result from the judicious system of draining the north level, which there is no doubt will be imitated with equally good effects in the other levels.

In consequence of the more rapid discharge through this new channel—the Nene Outfall—the danger of inundation from a breach of embankment is greatly diminished, as regards the fens on each side of the Nene, between Peterborough and Wisbeach, and the value of the adjacent land is much increased. Its efficiency for draining the land may be appreciated by the fact, that the tide in this new channel ebbs out nearly ten feet lower than it did in the old channel, immediately opposite to the South Holland and North Level Sluices, (both below Wisbeach,) which are the outlets for the waters of about 100,000 acres of fen land. Means are thus afforded for obtaining a perfect drainage for the whole tract of marsh and fen land lying between the Nene and Welland, which hitherto has been only imperfectly drained.

A new sluice has been constructed for the outlet of the waters of the North Level into the Nene Outfall, and laid eight feet deeper than the sluice by which it formerly drained into the Old River Channel. The width of the water-way of the old sluice was seventeen feet; the width of the new sluice is thirty-six feet, and a new main drain has been formed, leading to this sluice from Clow's Cross, at which point all the waters of the North Level are collected. This drain commences and terminates nearly at the same points as the Old Shire Drain, for which it is substituted; it is only eight miles and a quarter long, about two-thirds of the length of the former drain, but it is eight feet deeper, and its capacity, taken in corresponding sections, is more than six times as great: it has a descent from Clow's Cross of four inches per mile. From Clow's Cross two new drains diverge in different lines; one of them, called the New South-eau, is much straighter and wider than the Old South-eau, which it is intended to replace; the New Wryde proceeds first in a curve, and then in a straight line to the counter drain. These cuts possess a superiority over the old ones, fully equal to that stated in the comparison made between Old Shire Drain and the New Main Drain. All these drains may be navigated, and will afford a much readier means of transit for goods, than any hitherto possessed by the districts through which they pass.

The works just described as having been executed under the acts of 1827 and 1829, were begun in 1828, and are now (1835) completed. The Nene Outfall was made at the cost of 200,000*l.*, and the drainage of the North Level, for which the Act was obtained in 1830, occasioned a further outlay of 150,000*l.* The great supporter of both these useful undertakings was the present Duke of Bedford, who carried them through with much patience and perseverance, under circumstances that would have discouraged a person of less steady purpose, and one who could not look forward with confidence to future advantage rather than present gain. In this conduct he was ably supported by the exertions of his confidential friend W. G. Adam, Esq., the accountant-general. But even they could not have carried them into effect without the scientific knowledge, great zeal and activity, and incessant labour which were displayed by Mr. Tycho Wing, his Grace's intelligent and able local agent, the third of his name who in succession have managed that property of the Russell family, and have enabled them to direct their influence to the continual improvement of this district.

Various auxiliary means have been used for the complete drainage of the Level. In many parts windmills have been erected for raising and carrying off the water through a safe channel, and more recently steam-engines have been employed for the same purpose. But the late improvements have rendered windmills and steam-engines unnecessary in the North Level, and if equal skill and enterprise were employed in draining the other levels, all the waters of these marshes might find an outfall with equal facility.

(Sir Jonas Moore's *History of the Bedford Level*; Colonel Dodson's *Design for the perfect Draining of the Great Level of the Fens called Bedford Level*: Burrell's *Brief Relation as to the Practicability, &c. of draining the Level of the Fens*; Dugdale's *History of Embanking and Draining, &c.*; Carter's *History of the County of Cambridge*; Lysons's *Magna Britannia*; Priestley's *Historical Account of navigable Rivers, Canals, &c.*; *Memoir of the Nene Outfall and the North Level Drainage*, printed for (private) distribution on the occasion of the public inspection of those works, 23rd May, 1834.)

BEDFORDSHIRE, an inland county of England, of very irregular shape. It lies between 51° 49′ and 52° 21′ N. lat., and 0° 8′ and 0° 41′ W. long. It is bounded on the N.E. by Huntingdonshire, and on the N.W. by Northamptonshire; on the E. by Cambridgeshire, on the W. and S.W. by Buckinghamshire, and on the S.E. and S. by Hertfordshire. Its greatest length is 36½ miles, measured nearly N. and S., and its greatest breadth is 22½ miles, measured nearly E. and W. Bedford, the county town, is situated near the centre of the county, rather nearer to the N. and W. boundaries. It is 46 miles, measured in a direct line from London (*i. e.* from St. Paul's), from which it lies N. by W., or N.N.W.; but by the road through Barnet, Hatfield, Hitchin, and Shefford, it is 50 miles. The area of the county is 463 square statute miles, or 296,320 acres; or, taking the sum of the areas assigned to the different parishes, 297,632 acres. It is the smallest county in England, except Huntingdon, Middlesex, and Rutland. The population in 1831 was 95,483. (*Population Returns*, 1831; *Enumeration Abstract.*)

Surface, Hydrography, Communications.—Bedfordshire has no high lands of any great extent. The range of the Chiltern hills (under the name of the Dunstable and Luton Downs) crosses it in a N.E. direction, near Dunstable, separating the basin of the Thames from that of the Ouse. Another ridge, having the same general direction, extends from Ampthill to near the junction of the Ivel with the Ouse. Some hills, between which the Ouse winds its course, and in which some of its feeders take their rise, occupy the north-west parts of the county. Between these hills and the Ampthill ridge is the vale of Bedford, a corn district of considerable extent. The woodlands are chiefly of modern origin, having been planted during the latter part of the last century: they consist chiefly of oak, Scotch fir, larch, and underwood of various kinds.

The chief river is the Ouse, which, approaching the county from Buckinghamshire, and forming for a short distance the boundary of the two counties, crosses Bedfordshire with so winding a course, that although the distance from the point where it first enters the county, to the point where it leaves, is, in a direct line, not quite 17 miles, the length of the river itself, between the same points, is probably not less than 45 miles. The average depth of the Ouse is considered to be about ten feet, and it is fordable in several places. It is subject to sudden and destructive inundations at all seasons. In its course through Bedfordshire it is increased by many streams, which flow into it on each bank, but none of these are of any size or importance except the Ivel. The Ivel is commonly considered to have its source near Baldock, in Hertfordshire, but the principal branch of it rises on the N.W. slope of the Chiltern hills, a little to the N.E. of Dunstable, and flowing to the N.E., unites with the Ouse at the village of Tempsford, after a course of about 30 miles. The streams which form another considerable feeder of the Ouse cross the county in its northern part. The river Lea, which falls into the Thames just below London, rises on the opposite slope of the same range of hills as the Ivel, and not far from the springs of that river; but only a small part of its course is in Bedfordshire. The Ouzel, a tributary of the Ouse, separates Bedfordshire from Buckinghamshire, but is to be considered as properly belonging to the latter county. The fish of the Ouse are pike, perch, tench, bream, chub, bleak, crayfish, fine eels, dace, roach and gudgeon. Bleak abound particularly about Bedford bridge. Eels are found in the greatest abundance and of the largest size at Stoke mill, near Melchbourne. The fish of the Ivel are, for the most part, the same as those of the Ouse: it is particularly famous for gudgeon.

The navigation of the Ouse commences at Bedford, and that of the Ivel at Shefford: by means of these rivers the county communicates with Huntingdonshire, Cambridgeshire, and Norfolk; and, more remotely, with other counties. There are no canals in Bedfordshire, but the Grand Junction Canal approaches close to its western border at Leighton Buzzard. The great road to Manchester, Leeds, Carlisle, and Glasgow, passes through it on the S.W. side, and the high north road, through York and Edinburgh, on the eastern side.

Geological character.—The range of the Chiltern hills consists of chalk, which occupies the south-eastern part of the county; and is skirted along its N.W. boundary by a belt of indurated chalk-marl, much covered by the debris of the chalk hills. This chalk-marl is known in the county by the name of clunch, and is extensively quarried at Totternhoe near Dunstable. It affords, by burning, a good lime. The chalk-marl is blended with a blue marl, which may perhaps be identical with the weald-clay of Kent, Surrey and Sussex, or with what has been denominated the Folkstone clay. Iron-sand, the lowest of the formations which intervene between the chalk and the oolites, stretches across the county in the same direction as the other formations, viz., from S.W. to N.E. Beds of fullers' earth, which occur in it, have been extensively worked, and in Fuller's time this mineral was known by the name of *Woburne earth*. The same formation contains also a considerable quantity of fossil wood. This iron-sand rises into a well-defined range of hills.

To the iron-sand succeeds a tenaceous adhesive clay, of a dark blue colour, becoming brown on exposure, and known by the name of Oxford clay. This stratum forms the vale of Bedford, and affords a strong clay soil, occupied chiefly in pasturage. It supplies several brick-kilns in the immediate vicinity of the town, in one of which part of a new species of Plesiosaurus was discovered in 1833. Many vertebræ of fossil Sauri have been found at Nemenham Mill, near Goldington: and an entire Plesiosaurus, of large dimensions, was discovered in 1833, in a brick-field about two miles north-west of Bedford, near the Ouse. The appearance of coal gave rise to some attempts to find that mineral, at Elstow near Bedford, which ended in disappointment. In the N.W. part of the county, the Cornbrash limestone appears, and is quarried in several places. The Oxford clay and the Cornbrash limestone are parts of the oolitic series. (Conybeare and Phillips's *Outlines of the Geology of England and Wales*; Smith's *Map and Delineation of the Strata of England and Wales.*)

Several springs in the county are impregnated with different minerals, but none of them are of any note. Drayton, in his *Poly-Olbion* (22nd song), as quoted by Fuller, speaks of a brook at Apsley Guise, near Woburn, the earth on the banks of which had a petrifying quality: but this account has been ascertained to be incorrect. Drayton's lines are as follows:—

> 'The brook which on her bank doth boast that earth alone,
> Which, noted of this isle, converteth wood to stone.
> That little Aspeley's earth we antiently instill
> 'Mongst sundry other things, a wonder of the isle.'

Late compilers, borrowing probably from Drayton and Fuller, speak of a petrifying spring near Woburn.

Climate, Agriculture.—The climate of this county, partaking of that of the interior of England, is not so wet as the western coast, nor so much exposed to cold winds as the eastern maritime counties. The air in general is mild and healthy, somewhat keen on the chalky hills, and moister on the cold, wet clays. The surface of the county is much varied; but none of the hills rise high or abruptly, with the exception of the chalky ridge, which is a continuation of the Chiltern hills, and which appears high only by comparison with more gentle undulations. Many of the slopes of the hills are skirted with woods and coppice, which add much to the general appearance of the country when viewed from an eminence. The soil varies greatly. On entering the county from the south the soil is composed of chalk, covered with a very thin layer of earth, which is consequently nearly in a state of nature, and only fit for sheep-walks. On descending the hills there occurs a mixture of chalk and clay, known by the name of 'white land,' which is stiff, but tolerably fertile. Various kinds of loam, chiefly clay, succeed, till you arrive at a sandy belt which stretches obliquely across the county from Leighton Buzzard to Biggleswade and Potton on the borders of Cambridgeshire. Along this belt runs the river Ivel, which falls into the Ouse at Tempsford. Between the course of the Ivel and the valley of the Ouse near Bedford lies a tract of stiff soil of various texture and quality, but quite different from the light soils found in the belt. Along the course of the Ouse, especially near Bedford, a gravelly soil prevails, covered in some places with a layer of rich, brown earth, well adapted for every kind of agricultural produce. Proceeding north of Bedford the general character of the soil is stiff, wet, and poor, with very few exceptions. The most fertile spots in the county are in the brown earth before-mentioned in the valley of the Ouse near Bedford, and in the sandy belt, where the soil washed down from the hills has accumulated, in particular basins, on a porous substratum. These soils, composed of rich loam and of great depth, are admirably adapted for market-gardens, for which the county has long been noted. The parish of Sandy in particular, not far from Biggleswade, and some others, produce an abundance of vegetables, not only for the supply of the neighbourhood, but also for distant markets. At the same time there are spots, both in the chalky hills and in the sandy eminences, which are as barren and unproductive as any in England; especially where a grey, loose sand abounds, on which nothing but ling or heath will grow.

These are scarcely of any use but as rabbit warrens, although some of them have been brought into cultivation. Along the river Ivel, in the parishes of Tingrith, Fletwick, Westoning, Hitton, Maulden, &c., a considerable quantity of ferruginous peat is found.

From this brief sketch it will be seen that there is scarcely any county of which the soil is so diversified, and where experiments on the best mode of cultivating various soils could be made with more advantage. With the well-known patronage of the Dukes of Bedford, especially of the late Duke Francis, and other large proprietors, and the example of their stewards and immediate tenants, one would expect a greater progress in the science and practice of agriculture than will be found in the county in general on careful examination. Many improvements have, no doubt, been introduced since the county has been more generally inclosed, which could not be expected while the system of common fields precluded any deviation from the established rotations of crops; but much yet remains to be done before the county of Bedford can vie with the eastern maritime counties, from the Thames to the Humber, in the cultivation of the land, or in the management of stock. The poor, cold clays, which form a considerable portion of the soil of this county, as they are cultivated at present, give no great return to the farmer. The chief produce is corn, and it requires much labour and expense to obtain a very moderate crop. This, together with the gradual depreciation in the value of corn when compared with stock, makes the rents very low. Most of the land north of Bedford does not let for above 10*s.* an acre, and some as low as 6*s.*, in spite of considerable expense incurred by proprietors in fencing and making ditches, an essential improvement on this kind of soil. That a better system could be adopted there can be no doubt, but old prejudices interfere with the better management of cold, wet clays; and while poor light soils, formerly considered as nearly barren, have been greatly improved by the introduction of turnips and the profit on sheep, the poor clays are still managed nearly in the same manner as they were a century ago; and many practical and intelligent men imagine, that no new method can be adopted with any chance of success. The chief cause of this is, perhaps, the difficulty of converting such soils into good pasture after having been once broken up; but this difficulty, however real, is not insurmountable.

On this subject we must refer the reader to the article Grass-land, in which the principles of this important part of agriculture will be discussed. In the account of the agriculture of Berwickshire, also, some useful practical examples are given.

It must be acknowledged by all those who are interested in the letting of land, that there is a great difficulty at present in finding responsible tenants, with sufficient capital, who are inclined to take a farm consisting chiefly of heavy and cold arable land, however low the rent may be; and that, when a tenant is tempted by a very reduced rent to take such a farm, he is soon discouraged and repents of his bargain: whereas light lands, however poor, upon which turnips can be made to grow, and sheep can be kept, soon find respectable tenants.

In the light lands the system is well established, and nothing is required but to follow the regular course of crops, and pay some attention to the sheep; the crops are less precarious, and the weather does not so often interfere with the common operations of husbandry. Hence it is that the chief improvements have been made in the sandy soils; and it will require some new impulse to agricultural speculations to engage either proprietors or tenants to adopt an improved system on the wet clays. But, even according to the old system of fallowing and cropping, the clay soils in Bedfordshire are not cultivated in the most approved manner, as will be seen by comparing the usual operations with those on similar soils in Essex and Suffolk. The old method in Bedfordshire, which is still continued by many farmers, was to fallow the land every third year, and as by this system there was no means of raising a sufficient quantity of manure to dress the land fallowed, recourse was had to the folding of sheep. This system was well adapted to situations where ample commons gave the means of keeping the sheep at a small expense; but where such commons have been inclosed, and the sheep must necessarily be maintained on the farm, it is evident that, unless food for the sheep be raised on the field on which they are folded, one part of the farm is robbed to enrich the other; and the damage done to the sheep by folding them on cold, wet clays in rainy weather, is probably not compensated by the good which their manure does to the following crop. The manner, also, in which the fallows are treated is not perfect. The old custom was to give only three ploughings, which had distinct names: the first was called the *fallow*, the second *stirring*, and the third *laying up*. There seems to have been a prejudice against frequent ploughing of stiff soil, and the drag or harrows were not much used. This is very different from the practice on stiff soils in the county of Essex, where they never think they can plough enough. (See Bachelor's *Survey of Bedfordshire*, p. 329.)

The usual rotation was, first a fallow, of which as much as could be folded over with sheep was sown with wheat; the remainder was slightly manured, and sown with barley. The second crop was beans or oats: and then the land was so foul and exhausted as to require another summer fallow. Better rotations have been introduced since the common fields have been divided and inclosed; but the old and faulty system, under which the ancestors of the present race lived comfortably, and at low rents, is looked back to by many as superior to those which have been introduced since. The great fault lies in the want of balance between the land tilled for corn, and that which is devoted to grass or green crops for cattle. Some farms are managed in a scientific manner, but the example has not been very generally followed.

There are a few meadows along the course of the rivers Ivel and Ouse which are occasionally flooded. Where the subsoil is gravelly and porous, the herbage is good and abundant; where it is composed of clay, and there is not a very ready channel for the water to run off, the herbage is coarse and full of rushes. These meadows might be much improved by banks and sluices judiciously placed. In no other part of the county is there much good grass-land, a few spots near the larger towns excepted. It has been urged, as a reproach to the soil of the county, that there was no pasture in it that would fatten a bullock. Whether this be correct or not, it is certain that no such rich grass is to be found, as may be seen in some of the richer grazing districts.

There is nothing remarkable in the cattle and sheep in this county, there being no indigenous breeds of either. The cows are of every imaginable breed; and as there are few extensive dairies, except some about Ampthill, no particular breed is kept so pure as to deserve a name. Some few individuals have taken pains to introduce choice cattle, but these are exceptions; and, in general, the few oxen that are fatted are bought of drovers at the different fairs, and are chiefly Scots, Welsh, and short-horns. The sheep are mostly Leicesters and South-downs, which have nearly superseded the old horned breed formerly kept; for although these were more hardy, and suffered less from folding on cold wet land, the improved breeds are much more profitable, especially in inclosed fields.

Formerly there were many rabbit-warrens on the poor, light, grey sands, as this was considered the only means of deriving any profit from so poor a soil. Most of these have been converted into farms, whether with much advantage in general we will not say, but in some cases with a decided improvement; and rabbits are now considered more as a nuisance to the adjoining lands, than as a source of profit. An attempt was made lately to breed tame rabbits, and to fat them for the London markets, with food raised purposely for them. Many thousands were kept on this plan by Mr. Fisher, in buildings raised on purpose near Ampthill, but the speculation did not answer, and the establishment was broken up. Whether this species of industry might not be profitable to cottagers on a small scale, is a subject worthy of experiment. The chief thing to be attended to in feeding rabbits is cleanliness and air; and from their prolific nature, and the value of the skin and flesh of the best sorts, it is highly probable that, with good management, a considerable profit might be made from them. The pigs reared and fatted in Bedfordshire are mostly of the Berkshire and Suffolk breeds, but no great pains are taken to keep up their distinguishing qualities, and they are often crossed very injudiciously. No animal varies more in its qualities than the pig, and the different breeds have only one point in common, that of being prolific. The qualities of fattening early, and on a small quantity of food, belong only to very improved breeds, which are not kept sufficiently distinct in this county.

The farms in Bedfordshire are not in general of great extent. Some few contain from 500 to 600 acres, but the average size is under 200. Leases for long terms are not common, which is an obstacle to improvement. Farms held from year to year may be kept in good heart, and well cultivated, on the common established system, provided there be a just confidence in the honour of the landlord, that he will not suddenly or capriciously remove a tenant; but no great and permanent improvements can be expected to be made, except by a proprietor or a lessee for a considerable term. A tenant, liable to be ejected at a short notice, cannot obtain credit to borrow money to lay out on his farm; and if he is prudent, will not lay out his own capital on an uncertainty. Formerly there were many small proprietors and yeomen occupying their own lands to the amount of from twenty to fifty acres, but they are mostly reduced to the state of cottagers and labourers. A very few have had the good fortune to take advantage of the high prices, and to sell their farms to the surrounding larger proprietors; but many, by increasing their occupations, which required additional capital, have been led to mortgage their land, and have gradually been involved, till they were obliged to sell their little property to pay the mortgage. Thus a class in society, between the cottager and the large farmer, has nearly disappeared.

An agricultural society was established at Bedford in 1803, under the patronage of the Duke of Bedford, which has done some good, and distributed rewards and prizes, both for improvements in agriculture, and to encourage industry; but the true stimulus to improvement is profit, and of late years this has been entirely wanting. The disheartened farmer has no spirit to try experiments, which require some outlay, without a rational prospect of an adequate return: and the example of rich proprietors is seldom followed, until the real profit is well ascertained, which it is often very difficult to do.

The following is a list of the fairs held in Bedfordshire:—Ampthill, May 4; Nov. 30. Bedford, First Tuesday in Lent; April 21; July 5; Aug. 21; Oct. 11; Dec. 19. Biggleswade, Feb. 14; Easter Saturday; Whitsun-Monday; Aug. 2; Nov. 8. Dunstable, Ash-Wednesday; May 22; Aug. 12; Nov. 12. Elstow, May 15 and 16; Nov. 5 and 6. Harrold, Tuesday before Old May-day, Old Midsummer-day, and Old Michaelmas-day. Ickwell, parish of Northell, April 6. Leighton Buzzard, Feb. 5; second Tuesday in April; Whitsun-Tuesday; July 26; Oct. 24. St. Leonard's, near Bedford, Nov. 17. Luton, April 18; Oct. 18. Odell, Whitsun-Thursday. Potton, Jan. 27; last Tuesday in April; first Tuesday in July; Tuesday before Oct. 29. Shefford, Jan. 23; Old Lady-day; May 19; Oct. 11. Selsoe, May 13; Sept. 21. Tuddington, April 25; first Monday in June; Sept. 4; Nov. 2; Dec. 16. Woburn, Jan. 1; March 23; July 13; Sept. 25.

Divisions, Towns, &c.—Bedfordshire is divided into nine hundreds: viz., Stodden, Willey, and Barford in the north; Biggleswade and Clifton in the east; Wixamtree in the centre; Redbornestoke in the west; and Manshead and Flitt in the south. The names of all these appear in the Domesday survey, together with the following three half hundreds: Stanburge, Weneslai, and Buchelai. These half hundreds are now incorporated with the hundreds. The town of Bedford also formed a half hundred by itself. The number of parishes is given in Camden's *Britannia* as 116; but by the population returns they appear to amount to 124, besides one district (Chicksands) which is extra-parochial. Of these 124 parishes, one extends into Huntingdonshire, one into Hertfordshire, and one into Northamptonshire.

The number of market towns is ten: Bedford, the county town, on the Ouse, is a parliamentary borough. The population of its five parishes amounted, by the returns of 1831, to 6959. Luton, on the Lea, in the southern part of the county, comes next in respect of population. The township of Luton contained, in 1831, 3961 inhabitants, and the whole parish of Luton 5693. Leighton Buzzard, or Busard (population of township, in 1831, 3330, of the whole parish 5149), is on the Ouzel. Biggleswade is on the Ivel; it had, in 1831, 3226 inhabitants. Dunstable (population, in 1831, 3117), once a parliamentary borough, and still retaining something of the form of a corporation, is in the south part of the county, between Luton and Leighton Buzzard. These are the only towns which have more than 2000 inhabitants. [See BEDFORD, BIGGLESWADE, DUNSTABLE, LEIGHTON BUZZARD, and LUTON.] The others, with their population in 1831, are as follows. Woburn (population 1827), a short distance north by east of Leighton Buzzard, and on the high road to Manchester and Liverpool; Potton (population 1768), in the east part of the county, on the border towards Cambridgeshire; Ampthill (population 1688), on the road between Dunstable and Bedford; Harrold (population 995), on the river Ouse, in the north-west part of the county, on the border of Northamptonshire; and Shefford on the stream described as the principal branch of the Ivel (population 763). The market of Toddington (population 1926), between Dunstable and Ampthill, has been discontinued of late years. Of these smaller places we subjoin a few other particulars.

Woburn, 41 or 42 miles from London, is a well built and well paved town, with broad and handsome streets. It owes much of its appearance to the circumstance of its having been almost entirely rebuilt since 1724, when it was destroyed by fire. It has a good market-house, built by the Bedford family after the great fire just noticed, and much improved by the present duke, from picturesque designs of Mr. Blore. The parish church and school-house have also been enlarged at his Grace's expense, by the same eminent architect; and a beautiful lantern and pinnacles have been added to the church tower. It has a parish church (the living is a perpetual curacy, with a commodious glebe house, in the gift of the Duke of Bedford), two dissenting meeting-houses (Independent and Methodist), some alms-houses, and a large free-school, conducted on the Lancasterian system. The chief employments of the poor are straw-hat and lace-making. There are four fairs in the year; and the market is held weekly on Friday. A divisional or petty session is held in the market-house every fortnight.

There was an abbey of Cistercian monks at Woburn, founded by Hugh de Bolebec, A.D. 1145. It was valued at the dissolution at 430*l.* 13*s.* 11*d.* gross income, or 391*l.* 18*s.* 8*d.* clear yearly value. (Tanner's *Not. Mon.*) The last abbot, Robert Hobs, was executed for denying the king's supremacy; and the site of the abbey was granted to John, Lord Russell, afterwards Earl of Bedford. Part of the old abbey remains, but has been converted into the Duke of Bedford's magnificent mansion which still retains the name. The present abbey was partly put into its present form about the middle, and partly towards the end, of the last century, and occupies four sides of a quadrangle, presenting four fronts of above 200 feet. The west or principal front is of the Ionic order, with a rustic basement. The offices are at a short distance from the mansion; and the park is finely diversified with wood and water. The tree on which Abbot Hobs was hung is still standing, and is carefully preserved. The abbey is adorned with some interesting portraits, including those of Queens Mary and Elizabeth; another of Mary with her husband, Philip of Spain; Lady Jane Seymour, wife of Henry VIII., and mother of Edward VI.; Anne of Denmark, wife of James I.; Sir Philip Sidney; William Lord Russell, beheaded in 1683; Rachel Wriothesley, his admirable wife; General Monk; Cecil, Lord Burleigh; and many others. In the dining-room is a fine collection of portraits by Vandyke; and in the breakfast-room a numerous series of views in Venice, by Conaletti, painted originally for Bedford House. In the sculpture gallery are the antique vase known as the Lanti vase, brought over to England by Lord Cawdor, and a very large marble antient sarcophagus (brought from Ephesus), on the four sides of which are sculptured the sad story of Achilles dragging Hector's body, Priam's ransoming it at its weight in gold, and other post-Homeric traditions of the woes of Andromache and Astyanax. In the park is a farm-yard on the most extensive scale, and furnished with every convenience. It originated with Francis, brother and predecessor of the present Duke of Bedford.

Potton, 50 miles from London, and 6 or 7 from Biggleswade, has a good corn market, though not equal to what it was formerly; the decline is attributed by some to a fire which, in 1783, destroyed above fifty houses, and did damage to the amount of more than 25,000*l.* The living is a vicarage in the gift of the crown. It was once held by the celebrated Stillingfleet, who wrote here his *Origines Sacræ*, a work esteemed one of the best defences of revealed religion.

Ampthill, 45 miles from London, and 8 from Bedford, has an inconsiderable market, and one annual fair. It has a good market-house; and near the middle of the town stands an obelisk of Portland stone, in which is a pump. Near the town is Ampthill House, the seat of Lord Holland. Ampthill Castle, which stood in the park of Ampthill House, was the residence of Catherine of Aragon, queen of Henry VIII. while the business of her divorce was pending. The site of the castle is marked by a cross erected in 1773 by the Earl of Upper Ossory, who then possessed the domain. With Ampthill Park is united Houghton Park, in which are the remains of Houghton House, built by the Countess of Pembroke, sister of Sir Philip Sidney. There is an alms-house for a reader, twelve poor men, and four poor women, about a mile from Ampthill. Divisional or petty sessions are held at Ampthill every alternate Thursday.

Harrold, antiently Harwolde or Harwood (Tanner's *Not. Mon.*), or Harles-wood. (Fuller's *Worthies of England.*) This small town is not upon any main road, its distance from London cannot, therefore, be accurately given, but it is about 9 miles N.W. of Bedford. (Jeffery's *Map of Bedfordshire.*) Its market, which is on Thursday, is little more than nominal, and the only branch of manufacture carried on in the place is that of lace. There is a bridge over the Ouse with a long causeway. The parish church is adorned with a handsome Gothic spire. The living is a vicarage in the gift of the Earl de Grey. Harrold had once a small priory, built in the reign of Stephen, first both for canons and nuns of the order of St. Nicholas of Arrouasia, but afterwards it consisted only of a prioress, and three or four nuns of the order of St. Augustin. At the Dissolution its total income was 47*l.* 3*s.* 2*d.*, its clear income 40*l.* 18*s.* 2*d.* The site was granted in 1544 to William Lord Parr. (Tanner's *Not. Mon.*) The priory is now a farm-house, the property of Earl de Grey. The only part of the conventual buildings which remains is the refectory, now a barn called the Hall Barn.

Shefford is 41 miles from London, and 9 from Bedford. It is on the road between these two, and on the river Ivel. Besides a market on Friday, it has four fairs, the two first (on the 23rd of January and Easter Monday) are considerable marts for sheep and cows. It is a parochial chapelry; the chapel has been lately much enlarged. There is also an endowed Catholic chapel. The navigation of the Ivel commences here. Robert Bloomfield the poet died here in 1823. At Chicksands near Shefford was a priory of Gilbertines, founded about A.D. 1150, by Pain de Beauchamp and Roais his wife. Its gross yearly value at the Dissolution was 230*l.* 3*s.* 4*d.*, the clear yearly value, 212*l.* 3*s.* 5*d.* (Tanner's *Not. Mon.*) The site was granted to R. Snow, from whom it came to the Osborn family. The present residence of the Osborns retains much of the monastic appearance, and indeed consists in part of the remains of the conventual buildings; this house contains some valuable portraits.

Toddington is between Dunstable and Ampthill, about 5 miles from Dunstable, and 38 or 39 from London, nearly 7 miles from Ampthill, and nearly 15 from Bedford. The market, which a century and a half ago was one of the most considerable in the county, has been discontinued, and the market-house pulled down: it has five fairs. The Gothic church contains some antient monuments in its north and south transepts: but these transepts, as well as the monuments in them, are in a very dilapidated state. A curious frieze of grotesque animals runs under the eaves of the church roof There was an hospital at Toddington, founded, in the time of Henry VI., in honour of John the Baptist, by John Broughton. It was for a warden, being chaplain, and three poor men. (Tanner's *Not. Mon.*) There is a Wesleyan meeting-house at Toddington.

Divisions for Ecclesiastical and Legal Purposes.—The number of parishes in this county has been already given as 124, but this will not represent the number of benefices, for several of these have been consolidated. Some of these consolidations are of recent date. Messrs. Lysons (*Magna Britannia*) state, that of 121 parishes (they probably omit the three that are partly in other counties) 63 are vicarages, the great tithes of which were formerly, with few exceptions, appropriated to religious houses, and are now in lay hands.

The county is in the diocese of Lincoln, and is under the jurisdiction of the archdeacon of Bedford. It is divided into six rural deaneries, viz., Bedford, Clapham, Dunstable, Eaton, Fleete, and Shefford.

It is in the Norfolk circuit. The assizes and sessions are held at Bedford, which is also the chief place for the election of the two members for the county. The other polling places for the county are, Sharnbrook in the north, Biggleswade in the east, Leighton Buzzard in the south-west, Luton in the south, and Ampthill. Besides the two county members, two are returned for the borough of Bedford.

Civil History and Antiquities.—At the time of the Roman invasion, Bedfordshire appears to have formed part of the territory of the Cattieuchlani; a people conjectured by Camden to be the same as the Cassii, mentioned by Cæsar among the tribes who submitted to him during his second invasion of the island. In common with the other inhabitants of South Britain they fell under the Roman domination. Three roads, which may be referred to this period, or a still more antient one, crossed this county, and several camps or earth works still remain. Of the roads, the Watling Street runs in a north-west direction, and coincides in this county with the high road from London through Dunstable and Fenny Stratford (Bucks) to Coventry. It was, probably, of British origin, though used and improved by the Romans, who had on it their station of Durocobrivæ (Antoninus), or Forum Dianæ (Richard of Cirencester), now Dunstable. The Ikening or Ikeneld Street, also of British origin, runs in a south-west direction through Dunstable. The third road, a Roman military road, coincides with the present high north road from near Baldock to the vicinity of Biggleswade, where the modern road makes a bend, while the antient one pursues a more direct course through Tempsford Marsh or Cow Common into Cambridgeshire. It is supposed that a Roman road from the Isle of Ely to Cambridge led from the latter place through Bedfordshire towards Fenny Stratford. On the edge of a low range of the Chilterns at Maiden Bower, near Dunstable, are the remains of a British station or town. These remains consist of a vallum, nearly circular, thrown up on a level plain, and inclosing a space of about nine acres. The banks are from eight to fourteen feet high. There is no ditch on the south side, and on the south-west and west only a very small one; on the north-west is a descent to the meadows. Some have assigned to this work a Saxon or Danish origin. About a mile westward of this is another remarkable earth-work, called Toternhoe Castle. It consists of a lofty circular mount, with a slight vallum round its base, and a larger one of an irregular form at some distance from it. On the south-east side of this is a camp, in the form of a parallelogram, about 500 feet long, and 250 feet wide (the length extending from north-west to south-east), secured on three sides by a vallum and ditch (very entire on the south-east side), and protected on the fourth (the south-west) side by a precipitous descent. The irregular work is supposed to have been of British, and the parallelogram of Roman origin. At or near the village of Sandy, or Salndy, about three miles north of Biggleswade, is supposed to have been the British or Roman town called *Σαλῆναι* by Ptolemy, and Salinæ in the Chorography of the anonymous geographer of Ravenna. A large Roman camp (once perhaps a British post), called popularly Cæsar's Camp, may be traced in the immediate vicinity of this place. It is of irregular form, being adapted to the summit of the hill, and incloses about thirty acres. There are circular inclosures of earth on the heath near Leighton Buzzard, and at about four miles east of Bedford near the road to Great Barford and Eaton-Socon. The last is small, but of considerable height, with openings on the north and south sides, resembling an amphitheatre.

In the contest maintained by the Britons against their Saxon invaders, and again by the Saxons against the encroachments of the Danes, Bedfordshire appears to have been the scene of violent contest. At Bedford a battle was fought in 571, 572, or 580, between Cutha, or Cuthwulf, brother of Ceaulin, or Cealwin, King of the West Saxons, and the Britons: in which the latter were routed, and lost, in consequence of their defeat, four principal towns, one of which was Lygeanburgh, supposed to be Leighton in this county. Yet although this success was gained by the West Saxons, the county was comprehended in the subsequently formed kingdom of Mercia, founded by a body of Angles. Offa, King of the Mercians, is said to have been buried at Bedford; but his sepulchre was carried away by an inundation of the Ouse. In the Danish wars Bedford suffered severely, having indeed been ruined by those fierce invaders; but it was repaired by Edward the Elder, son and successor of Alfred the Great. The same prince afterwards besieged and took Temesford, now Tempsford, which the Danes had fortified. In 1009 and 1010, during the war between Ethelred II. and Sweyn, King of Denmark, the Danes invaded this county. In the latter of these years they burnt

Bedford and Temesford; but in 1011 the county returned under the sway of Ethelred.

An account of the castle of Bedford, and the historical circumstances connected with it, has been given in the article Bedford.

It is supposed that all the other baronial castles in the county of any note had been destroyed in the reign of John; and it is perhaps owing to this that we read of so few occurrences in Bedfordshire during the civil war of the Roses. This county was the scene of few conspicuous events during the civil war between Charles I. and his parliament.

Bedfordshire possessed several monastic establishments. There were six 'greater monasteries,' i. e. monasteries possessing above 200*l.* clear yearly revenue at the time of the Dissolution: viz., Elstow Abbey, near Bedford, for Benedictine nuns, founded in the time of William the Conqueror by his niece Judith; gross yearly income 325*l.* 2*s.* 1*d.*, clear income 284*l.* 12*s.* 11*d.* Dunstable Priory, for Black Canons, was founded by King Henry I. in the latter part of his reign; at the Dissolution the gross revenue was 402*l.* 14*s.* 7*d.*, and the clear revenue 344*l.* 13*s.* 3*d.* per annum. Wardon, or Warden, otherwise De Sartis Abbey (Warden, once a market town, is to the right of the road to Bedford, between Shefford and that town), was founded by Walter Espec, in 1135, for Cistercian monks; at the Dissolution it had 412*l.* 11*s.* 11*d.* gross, or 389*l.* 16*s.* 6*d.* clear yearly revenue. Woburn Abbey and Chicksands Priory, near Shefford, have been already noticed. Newenham Priory, near Bedford, was founded in the time of Henry II. by Simon Beauchamp, who removed hither a priory of Black Canons from St. Paul's, Bedford: the gross yearly revenue of Newenham Priory at the Dissolution was 313*l.* 15*s.* 5*d.*, the clear revenue 293*l.* 5*s.* 11*d.* There were many minor establishments, priories, nunneries, hospitals, &c.

Of these monastic establishments there are no considerable remains, except of Dunstable Priory, Elstow Abbey, Newenham and Chicksand's Priory, the last of which has been already noticed. The parish churches of Dunstable and Elstow were the conventual churches; indeed Dunstable church is only the nave of the original structure. These exhibit the Norman intermingled with the early English style of architecture.

Among the parochial churches of this county are some relics of early architecture. The nave of Pudington church, in the north-west extremity of the county, has the semicircular arch and zigzag moulding characteristic of the Norman, or, as some call it, the Saxon style: the same style is also conspicuous in the south door of St. Peter's at Bedford, and in the doors of the churches at Elstow, Flitwick, and a chapel at Meppershall. The early English is to be traced in the churches of Felmersham, on the Ouse, not far below Harrold; Eaton Bray and Studham, both in the southern extremity of the county; Barton in the Clay, between Luton and Bedford; Leighton Buzzard; and, though in a small degree, Luton. The decorated English style, which prevailed in the fourteenth century and succeeded the early English, is to be traced in Low Sundon and Ampthill churches; in St. Paul's, Bedford; in Silsoe Chapel, and in some churches already mentioned. Dunstable, Leighton Buzzard and Luton churches are perhaps the best deserving of examination of any in the county.

It does not appear that there are any remains of baronial castles in Bedfordshire, except the earth works which mark their sites, and which may be observed at Bedford, Eaton-Socon, and other places.

Education, Schools, &c.—The parliamentary papers of 1820 exhibit a return of the state of education in this county. The return was ordered by the House of Commons to be printed, April 1, 1819. There were then forty-two endowed schools, exclusive of the Harpur free-schools at Bedford, giving instruction to 2066 children, and possessing a revenue of 1825*l.* per annum: of these schools four were on the plan of Bell or Lancaster, and had in them 655 children. Of unendowed day-schools the return was as follows:

		Schools.	Scholars.
National and Lancasterian schools		6	319
Common day-schools		42	1149
Dames' schools		46	849
	Unendowed day-schools	94	2317
Endowed	,,	42	2066
	Total	136	4383

Of the 4383 children taught in the day-schools, endowed and unendowed, 2587 received a gratuitous education, and 1796 paid for their instruction. There were at the same time seventy-seven Sunday-schools giving instruction to 5060 children.

An account of the Harpur charity will be found in the article Bedford.

The free-school at Woburn is not endowed, but has been supported since 1582, by the successive earls and dukes of Bedford. The school is now on the Lancasterian system, and contains 150 boys. The master's stipend (50*l.* per annum) is paid by the Duke of Bedford, who also keeps the school premises in repair. (*Reports of the Commissioners appointed to inquire into Charities.*)

The report of the *National Society for promoting the Education of the Poor, for* 1832, gives an account of the state of education in the county of Bedford, but the account includes only schools connected with the Church of England; and it is further incomplete from the circumstance, that from thirty-nine parishes or parochial chapelries no return had been made. The account states, that there were forty-three Sunday and daily schools, and fifty-two schools held on Sunday only. In schools of the former kind 1287 boys and 1254 girls were instructed; and in those of the latter kind 1771 boys and 1957 girls; making a total of 3058 boys and 3211 girls, or 6269 children. The population of the county in 1831 was 95,383.

Population.—Bedfordshire is the most purely agricultural county in England, having the smallest proportional number of inhabitants engaged in manufactures and trade. Indeed, it can hardly be said that the county contains any persons engaged in manufactures. At the census of 1831 it was found that thirty-eight males above twenty years of age were so employed, but these few persons might with equal propriety have been included among the class engaged in trade or handicraft, their employment being for the most part that of straw-platting. Bedfordshire is one of the very few counties which has maintained, relatively to other counties, the same position as regards the employment of the people at each of the enumerations of 1811, 1821, and 1831. The proportions in which the inhabitants were employed at each of those dates were as follows:

		1811.	1821.	1831.
Agriculture	(families in 100)	63·1	61·9	56·8
Trade, manufactures, &c.	,,	27·9	27·8	25·7
Other classes	,,	9·	10·3	17·5
		100	100	100

The proportions for all England were:—

		1811.	1821.	1831.
Agriculture	,,	34·7	33·	27·7
Trade, manufactures, &c.	,,	45·9	47·6	43·1
Other classes	,,	19·4	19·4	29·2
		100	100	100

The diminution in the proportion of families in Bedfordshire engaged in agriculture in 1831 was not sufficiently great to place the county in this respect after any other.

The population of Bedfordshire at each of the four enumerations made in the present century was as follows:

1801	63,393			
1811	70,213	increase	10·75	per cent.
1821	83,716	,,	19·23	,,
1831	95,483	,,	13·93	,,

showing an increase in the course of thirty years of 32,090 souls, or 50½ per cent.

The ages of the population were ascertained in 1821, at which time there were in Bedfordshire,

	Males.	Females.	Total.
Under 20 years old	20,967	20,955	41,922
Between 20 and 40	10,085	12,461	22,546
Between 40 and 60	6,298	6,725	13,023
Above 60 years	3,031	3,175	6,206
Ages unknown	4	15	19
	40,385	43,331	83,716

The following summary of the population, as it stood at the last enumeration in May, 1831, is taken from Mr. Rickman's abstract of the returns, and exhibits a sufficiently detailed account of the number and occupations of the inhabitants of the county:

HUNDREDS, &c.	HOUSES.				OCCUPATIONS.			PERSONS.			Males twenty years of age.
	Inhabited.	Families.	Building.	Uninhabited.	Families chiefly employed in agriculture.	Families chiefly employed in trade, manufactures, and handicraft.	All other families not comprised in the two preceding classes.	Males.	Females.	Total of persons.	
Barford, Hundred	1,152	1,211	2	18	943	213	55	2,862	3,018	5,880	1,333
Biggleswade . .	1,780	1,976	11	23	1,047	517	412	4,859	4,837	9,696	2,334
Clifton . . .	999	1,073	12	17	672	245	156	2,785	2,773	5,558	1,287
Flitt . . .	2,239	2,480	29	30	1,495	554	431	5,901	6,270	12,171	2,797
Manshead . .	4,004	4,456	37	77	2,170	1,411	875	10,259	10,965	21,224	5,052
Redbornestoke .	2,509	2,885	8	56	1,870	616	369	6,475	6,835	13,310	3,101
Stodden . . .	1,089	1,196	8	28	873	185	138	2,696	2,815	5,511	1,302
Willey . . .	1,619	1,802	14	22	1,178	385	239	4,199	4,428	8,627	2,078
Wixamtree . .	1,190	1,393	5	4	1,046	189	158	3,212	3,335	6,547	1,610
Bedford, Borough	1,397	1,544	45	49	70	792	682	3,202	3,757	6,959	1,677
	17,978	20,016	171	324	11,364	5,137	3,515	46,450	49,033	95,483	22,571

HUNDREDS, &c.	AGRICULTURE.			Employed in manufacture or in making manufacturing machinery.	Employed in retail trade or in handicraft as masters or workmen.	Capitalists, bankers, professional and other educated men.	Labourers employed in labour not agricultural.	Other males twenty years of age (except servants.)	MALE SERVANTS		Female servants.
	Occupiers employing labourers.	Occupiers not employing labourers.	Labourers employed in agriculture.						Twenty years of age.	Under twenty years.	
Barford, Hundred	108	35	811	1	218	22	31	33	41	39	133
Biggleswade . .	117	97	1,138	—	503	65	239	133	42	11	284
Clifton . . .	135	32	660	—	308	26	58	45	23	24	139
Flitt	143	59	1,166	22	614	51	179	144	89	83	285
Manshead . .	264	82	2,412	7	1,380	114	401	202	160	132	568
Redbornestoke .	190	51	1,835	4	668	57	132	131	30	34	254
Stodden . . .	106	49	790	1	216	22	31	59	28	19	109
Willey . . .	158	43	1,256	1	397	44	58	74	47	46	236
Wixamtree . .	97	21	1,053	—	233	29	55	68	54	26	145
Bedford, Borough	12	5	137	2	905	147	287	145	37	31	435
	1,330	471	11,588	38	5,502	577	1,474	1,037	551	448	2,588

County Expenses, Crime, &c.—The sums expended in each of those years for the maintenance of the poor were

In 1801, 36,891*l.*, being an average of 11*s.* 7*d.* for each inhab.
1811, 61,273*l.* „ „ 17*s.* 5*d.* „
1821, 68,826*l.* „ „ 16*s.* 5*d.* „
1831, 81,016*l.* „ „ 16*s.* 11*d.* „

The average proportion for the whole of England during the same years was 9*s.* 5*d.*, 13*s.* 5*d.*, 10*s.* 11*d.*, and 9*s.* 11*d.* respectively.

The total amount of money raised for poor-rate and county-rate in the year ending 25th March, 1833, was 91,761*l.* 8*s.*, and was levied as follows:—

On Land . . .	£81,101	7	0
Dwelling-houses .	9,918	0	0
Mills, &c. . .	315	16	0
Manorial profits, &c. .	396	5	0
	£91,761	8	0

Of which was expended—

For the relief of the poor . .	£80,384	11	0
In suits of law, removal of paupers, &c.	1,273	0	0
For other purposes . . .	9,388	6	0
	£91,045	17	0

The number of inhabited houses in the years when the census was taken was 11,888, 13,286, 15,412, and 17,978.

The annual proportions of baptisms, burials, and marriages to the population, in the five years preceding the four enumerations above-mentioned, were—

	1796-1800.	1806 1810.	1816-1820.	1826-1830.
Baptisms, 1 in	35	32	33	35
Burials, 1 in	51	48	57	54
Marriages, 1 in	114	131	123	129

The proportion of illegitimate children born in 1830 to the number of children born in wedlock was one in thirty: the number of illegitimate children was 41 males and 50 females.

The number of turnpike-trusts in the county in 1829 was 15; the extent of turnpike-roads under their charge 238 miles; the annual income of the same, derived from tolls and parish composition, was 17,938*l.*, and the annual outlay for repairing and management 17,993*l.* The county expenditure for several local purposes in 1833 was as follows:—

Bridges and roads leading to them .	£145	8	5
Gaols . . .	161	9	6
Bridewells, or houses of correction .	436	1	11
Courts of justice	86	11	10
County surveyor . . .	58	15	6
Expenses of criminal trials at quarter-sessions	319	17	1
Ditto ditto at circuits . .	521	17	4
Ditto of coroners . . .	88	1	9
Ditto of shire-halls	225	19	10
Ditto of lunatic asylums . .	649	18	8

The entire sum levied for county-rate during 1833 was 5816*l.*

The total numbers of persons charged with criminal offences in Bedfordshire, in each of the periods of seven years ending with 1820, 1827, and 1834, were 367, 766, and 812 respectively, being an average of 52 annually in the first period, 109 in the second period, and 116 in the seven years ended with 1834.

The number of offences tried at quarter-sessions in 1833 was 71:

Convictions	46
Acquittals	9
Discharged by proclamation	16
	71

The total number of persons charged with crimes at the assizes in 1834 was 164. Of these, 16 were offences against the person; 11 offences against property committed with violence (housebreaking); 86 offences against property without violence; 68 of the offences in this class are described as simple larceny; 7 were malicious offences against property (killing and maiming cattle, and arson); of the remaining 44 charges, 12 were offences against the game laws, and 32 were for trifling breaches of the peace. The total number of convictions was 130, only 5 of which were for capital offences, and the sentences upon these 5 convicts having been commuted for transportation, 4 for life and 1 for fourteen years; no execution took place within the county during the year. Of the 164 persons charged 158 were males, and only 6 females; their ages respectively were as follows:

	Males	Females.
Under 12 years of age . .	1	„
Between 12 and 16 . .	5	„
„ 16 „ 21 . .	42	1
„ 21 „ 30 . .	70	4
„ 30 „ 40 . .	22	„
„ 40 „ 50 . .	6	1
„ 50 „ 60 . .	7	„
Above 60 years of age . .	4	„
Age not ascertained . . .	1	„
	158	6

The proportion of offenders to the population was 1 in 582; the proportion for the whole of England and Wales was 1 in 619. The centesimal proportion of offences committed with violence was 16·47, the proportion for England and Wales being 17·44. Offences against property in this county 52·44, in all England 73·97. Malicious offences 4·27 in Bedfordshire, and 0·72 in all England. Other offences (game laws and breaches of the peace), centesimal proportion in Bedfordshire 26·82, in all England and Wales 5·95. There was not any charge in this county in 1834, for forgery and offences against the currency: the centesimal proportion of this class of crimes for the whole of England and Wales was 1·92.

There are three savings' banks in the county, at Bedford, Ampthill, and Biggleswade: the total number of depositors on 30th November, 1833, was 1858, and the amount deposited 63,333*l.* More than half the accounts were for sums under 20*l.*: the whole may be classed thus:—

948	depositors	under	£20	£7,070 deposited.
502	„	„	50	15,331 „
250	„	„	100	17,268 „
85	„	„	150	10,138 „
56	„	„	200	9,402 „
17		above	200	4,124 „

Total 1858 depositors, entitled to £63,333 savings depos.

Education.—The following abstract of the establishments for education, and the number of scholars attending the same, in the county of Bedford, is taken from returns presented by command of his Majesty to the House of Commons, during the present Session. (1835.) We have kept it distinct from the other part, as the returns are made on a different principle.

	Schools	Scholars.	Total.
Infant Schools	36		
Number of infants from 2 to 7 yrs. old: Males . . .	. .	97	
Females . .	. .	104	
Sex not stated	. .	422	
			623
Daily Schools	208		
Number of Children from 4 to 14 years old: Males		3140	
Females . . .		1897	
Sex not stated		972	
			6009
Schools . .	244		
Total of Children under Daily Instruction	. .	. .	6632
Sunday Schools	198		
Number of Children from 4 to 15 years old · Males	. .	6783	
Females . . .	. .	7604	
Sex not stated		1531	
			15918

Maintenance of Schools.

Description of Schools.	By endowment.		By subscription.		By payments from scholars.		Subscrip. and payment from scholars.	
	Schls.	Scholars.	Schls.	Scholars.	Schls.	Scholars.	Schls.	Scholars
Infant Schls.	—	—	2	95	32	486	2	42
Daily Schls.	37	1410	27	1061	130	2761	14	777
Sunday Schs.	8	875	189	15023	1	20	—	—
Total	45	2285	218	16179	163	3267	16	819

		Schls.	Scholars.	
Schools established by Dissenters included in the above.	Infant Schools	1	27	285
	Daily Schools	9	258	
	Sunday Schools	69	6743	

Of the infant schools, one at Silsoe, containing 77 children, is supported by Earl de Grey.

Daily scholars being usually admitted at boarding schools (of which 16 appear in the returns to be established in Bedfordshire), and the boarders being in fact (according to the words of the returns) daily scholars, such boarding-schools are included in the foregoing abstract. Lace and straw-plat schools, which are numerous in this county, are not included in the abstract, although at many of them the children are taught to read.

Of the Sunday-schools 57 are kept at places where no other school exists, and the children instructed in them, 3,110 in number, cannot therefore attend any other school. At other places part of the children taught in Sunday-schools attend other schools also, but the proportion of these is not given in the returns.

The increase of schools since the year 1818 has been as follows:—

Infant and other daily schools	108	containing	2643	scholars.
Sunday-schools	121	„	11180	„
	229		13823	

There are lending libraries of books attached to 17 schools in Bedfordshire.

BEDIS, for prayers, according to Jamieson, is still used in Scotland. He says ‘ In familiar language it is common to speak of ‘counting one's beads’ when one goes to prayer.’ He adds —‘ There is here an allusion to the Popish custom of running over a string of beads, and at the same time repeating Paternosters and Ave-Marias over them, according to a fixed rule, as the particular beads are meant, by their colour, form, or place, to represent to the mind this or that mystery, benefit, or duty.’ (*Etymolog. Dict.* vol. i.)

BEDLAM, a corruption of Bethlehem, the name of a religious house in London, which, subsequently to the dissolution of monasteries, was converted into an hospital for lunatics, but still retained its former appellation.

Shakspeare, in the second part of ‘Henry VI.,’ act v. scene i., speaks of ‘a *bedlam* and ambitious humour.’ Dr. Grey, however, in commenting upon this passage, justly remarks that the word *bedlam* was not used in the reign of Henry VI. Malone says that Shakspeare was led into this anachronism by the author of an earlier historical play upon the same subject: while Ritson, upon a misconception of what Stowe says in his ‘Survey of London’ (4to. 1598, p. 127), declares it to be no anachronism, and leaves the reader to suppose that the Hospital of St. Mary Bethlehem without London, the religious house alluded to, had been a receptacle for distracted people from its earliest foundation.

The Hospital of St. Mary Bethlehem, vulgarly called Bedlam, owed its name and original establishment to the piety of a citizen of London. In the year 1247, in the thirty-ninth of Henry III., Simon Fitz Mary, who had been sheriff, influenced by the prevailing religious feeling of the age, was desirous to found a religious house. Accordingly, he appropriated by a deed of gift, which is still extant, all his lands in the parish of St. Botolph without Bishopsgate, being the spot afterwards known by the name of Old Bethlem, now called Liverpool-street, a few yards north of Bishopsgate Church, to the foundation of a priory. The prior, canons, brethren, and sisters, for whose maintenance he provided, were to be distinguished by a star upon their mantles, and were especially directed to receive and entertain the bishop of St. Mary of Bethlehem, and the canons, brothers, and messengers of that their mother church as often as they might come to England. Such was the original design of this foundation.

In the year 1403, says Tanner (*Notit. Monast.* edit. 1787, Midd. viii. 30), most of the houses belonging to this hospital were alienated, and therein were no brethren or sisters, but only the master, and he did not wear the habit of his order. However, it continued to the Dissolution, when, being seized by Henry VIII., it was granted, in 1547, with all its revenues, to the mayor, commonalty, and citizens of London, from which time only it became an hospital for the cure of lunatics.

In the infant state of this charity no other provision was made for the unfortunate patients, besides confinement and medical relief; it was left for the judicious benevolence of succeeding times to improve the good work, and to supply the subsistence and care which has restored so many distracted objects to their families and to society. There is no account of donations received for this institution before the year 1632. About 1644 it was under consideration to enlarge the old hospital, but the situation had become close and confined. The New Hospital of Bethlehem, as it was then termed, was begun to be built in April, 1675, upon a plot of ground near London Wall, on the south side of the lower quarter of what was then called Little Moorfields; the design of the building was taken from the palace of the Tuileries, and was once admired. It is said to have been finished in the month of July, 1676. It has since, however, given way to a fitter building for its purpose, upon a distant, but more commodious spot, erected in 1814; and the Hospital of St. Mary Bethlem is now placed upon the other side of the Thames, in the parish of Lambeth. (See Shakspeare, Reed's edit. 1803, vol. xiii. p. 378; Tanner's *Notitia Monastica*, ut supr.; Dugdale's *Monasticon Anglicanum*, new edit. vol. vi. P. ii. p. 621; and Bowen's *Hist. Account of the Origin, Progress, &c., of Bethlem Hospital*, 4to. Lond. 1783. [For the treatment of lunatics, see LUNATIC ASYLUM.]

BEDLAM BEGGARS was the antient name for such patients of the Hospital of Bethlem, after it became a lunatic asylum, as, being partially cured, were allowed to go at large. Edgar, in 'King Lear,' act. ii. scene iii., when assuming the character of Poor Tom, says—

> 'The country gives me proof and precedent
> Of *bedlam beggars*, who, with roaring voices,
> Strike in their numb'd and mortified bare arms
> Pins, wooden pricks, nails, sprigs of rosemary,' &c.

Aubrey, in his 'Remains of Gentilisme,' an unpublished work, preserved among the Lansdown MSS. in the British Museum, part iii. fol. 231 b., tells us, 'Before the civil wars, I remember Tom-a-Bedlams went about a-begging. They had been such as had been in Bedlam, and come to some degree of soberness, and when they were licensed to go out they had on their left arm an armilla of tin printed, of about three inches breadth, which was sodered on.'

BEDLIS (also written **BETLIS**, **BIDLIS**, and **BITLIS**), in the Armenian language named Paugesh, one of the most antient cities of Kurdistan, is situated, according to Jaubert (*Voyage en Arménie et en Perse*, p. 475), in lat. 38° 34′ 30″, and long. 40° 10′ E. of Paris (*i. e.* 42° 30′ E. of Greenwich), on the southern side of the Nimrod mountains, and at a distance of about twenty miles, in a south-easterly direction, from the lake of Van. It extends across the greater part of a fine valley, remarkable in the history of the East for a signal defeat which the Osman sultan, Suleiman the Magnificent, here sustained from the Persians in 1533. (See Malcolm's *Hist. of Persia*, vol. i. pp. 507, 508.) Tavernier (*Persian Travels*, book iii. ch. iii.) says that the town is built like a sugar-loaf, 'the ascent being so steep on every side that there is no getting to the top but by wheeling and winding about the mountain.'

The castle belonging to the town is situated on the top of a high mountain on the western side of the valley. The country around Bedlis is highly cultivated, and fertile in grain, cotton, hemp, rice, olives, &c. The neighbourhood abounds in game; the surrounding hills are infested by lions, wolves, and bears. The inhabitants of Bedlis, including those of the neighbouring villages, are supposed by Kinneir (*Geographical Memoir of the Persian Empire*, pp. 330, 331) to amount to 20,000, partly Kurds and Turks, partly Armenian and Syrian Christians. The Armenians have four churches and four monasteries, and enjoy more liberty here than in other Mohammedan states.

The part of Kurdistan in which Bedlis is situated now forms part of the Asiatic dominions of the Osmans. When Tavernier visited this province in 1664, Bedlis was in the possession of a powerful independent bey, who acknowledged neither the supremacy of the grand seignior of Constantinople, nor that of the shah of Persia; and Tavernier observes that it was the interest of those two sovereigns to stand well with him, lest he should intercept the passage from Aleppo to Tauriz, which leads through the valley of Bedlis; the straits of the mountains being so narrow that ten men might defend them against a thousand. The road of the caravans that travel from Erzerum to Bagdad still passes through Bedlis. Colonel Monteith thinks it probable that Xenophon may have ascended the pass of Bedlis (*Journal of the Royal Geographical Society*, vol. iii. p. 51), and accounts for his not mentioning the lake of Van, by the circumstance that the road from Bedlis to Trebizond, which he must have followed, lies on the southern side of the Nimrod Mountains, which encompass the lake. According to Ouseley's Ebn Haukal (p. 165), there are three days' journey from Bedlis to Khullat, and as much to Miafarekein.

BEDMINSTER. [See BRISTOL.]

BEDNORE, a district situated on the summit of the range of mountains called the Western Ghauts, in the north-west quarter of the dominions of the rajah of Mysore, and overlooking to the west the provinces of Canara and Malabar. The Western Ghauts are from 2000 to 3000 feet higher than the chain of hills called the Eastern Ghauts. [See GHAUTS.] The range, on the summit of which Bednore is situated, is elevated from 4000 to 5000 feet above the level of the sea, and presents towards the west a very rapid slope, which intercepts and breaks the clouds brought there by the western monsoon. The climate is in consequence exceedingly moist, and it is calculated that nine months out of the year are rainy, and to such a degree as to oblige the inhabitants to provide themselves beforehand, at least for six months of the time, with a stock of provisions. By means of this excessive moisture vegetation is rendered extremely luxuriant; the timber trees throughout the district attain to great dimensions, and in some parts the underwood and jungle are quite impenetrable. In consequence of the difference of elevation, the seasons are usually one month more backward than in Canara.

The productions of the district of Bednore, which it raises in sufficient abundance for exportation, are betel-nut, cardamoms, pepper, sandal-wood, and a small breed of cattle. The most important of these articles in point of quantity is betel-nut. In return, Bednore imports rice, salt, oil, and cotton goods from the low country. The roads, in consequence of the prevalence of rain, are wretched, and almost all the exports and imports are conveyed by men, without the aid of any kind of carriage or beasts of burthen. A great part of the external trade of the district is carried on through the port of Mangalore.

Bednore district, together with Cuddapah, some Mahratta provinces, the country of the Nairs, and other small states on the Malabar coast, were conquered by Hyder Ally in 1763, shortly after his usurpation of the musnud of Mysore; but on the fall of Tippoo the greater part of these conquests were again severed from Mysore. Bednore is still attached to the rajah's dominions, but that prince is under the protection of the East India Company, with whose government he has concluded a subsidiary treaty.

(Rennell's *Memoir of a Map of Hindustan*; Buchanan's *Journey through Mysore*; *Reports of Committee of House of Commons on the Affairs of India*, 1832.)

BEDNORE, the capital of the district just described, is situated in 13° 50′ N. lat., and 75° 6′ E. long. This town was originally called Biderhully, signifying Bamboo Village; but when the seat of government was removed hither from Ikery, the name was altered to Bideruru, or Bamboo Place. Previously to this event the place consisted of a temple dedicated to *Nilcunta* (one of the titles of Siva) and a few surrounding houses, governed by a Brahmin chief. On becoming the seat of the rajah's government, the chief part of the revenue of the country was expended there, and Bideruru became a town of magnitude. Its situation is favourable for trade, the pass leading from Mangalore through Bednore being one of the best roads in the Western Ghauts. When attacked and taken by Hyder Ally in 1763, it is said to have contained 20,000 good houses, besides meaner dwellings. The ground on which it stands being very uneven, the town was never closely built, and it occupied an area, the circumference of which was eight miles. The place was defended by a circle of woods, hills, and fortified defiles. Towards the centre stood the rajah's palace, built on a high hill, and surrounded by a citadel. Hyder added some new works, but as the palace was commanded by some neighbouring hills, it could never have been capable of offering much resistance. While in the possession of Hyder he made it his chief arsenal, and employed many people in making arms and ammunition: much money was coined there during his reign. This chief also held out much encouragement to merchants, so that the trade of the place increased greatly. He likewise attempted to introduce the cultivation of silk, and caused many mulberry plantations to be made, but with little or no success, owing, probably, to the dampness of the climate.

When the town was taken by Hyder Ally, he found in it a considerable amount of treasure, and is said to have confessed that to this acquisition he was in a great measure indebted for his future success. Colonel Wilks has estimated the spoil which then fell into the conqueror's hands at twelve millions sterling, but this is doubtless a great exaggeration, and seems to partake of the nature of eastern hyperbole. Hyder changed the name of the town to Hyder-nuggur: he built a palace outside the citadel, and resided in it for three years.

In the beginning of 1783 the town was taken by the English, under General Mathews, on which occasion the commandant of the fort, to make a show of offering an obstinate resistance, burnt the palace. The attack made upon Bednore by Tippoo Sultan in the month of April following, appears to have taken the English quite by surprise. It is said that nearly all the British troops were at that time dispersed in every direction in search of spoil, and Tippoo made an easy conquest. The whole town was burnt during an engagement which preceded the capitulation.

The palace was rebuilt by Tippoo, and the town was partly restored; but the materials employed, being only timber and mud, could not be expected to last long in a country where the rains are so excessive. At his death the town contained about 1500 houses, and some additions have been made to it since that time. No manufactures are carried on here, and the chief support of the place is from trade, for which it is well situated.

Bednore is 452 miles from Bombay, 1290 from Calcutta, 413 from Hyderabad, 445 from Madras, 382 from Poonah, and 187 from Seringapatam, all travelling distances.

(Rennell's *Memoir of a Map of Hindustan*; Mill's *History of British India*; Wilks's *History of the South of India*; Buchanan's (Hamilton) *Journey through Mysore, Canara, and Malabar.*)

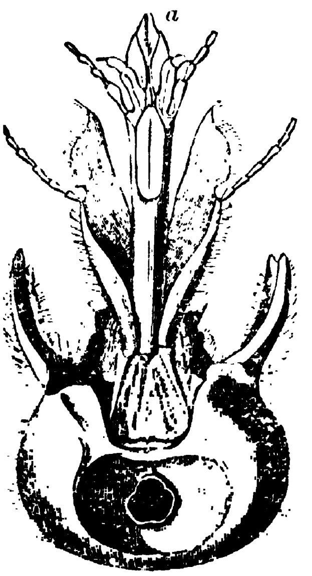
BEDSTRAW. [See GALINUS.]

BEDUINS. [See ARABIA.]

BEE, the name common to all the species of a very numerous tribe of insects of the Order *Hymenoptera.*

In England alone about two hundred and fifty species have been discovered. Kirby, in his beautiful monograph, "Apum Angliæ," divides them into two great groups—*Apis* and *Melitta*, which differ principally in the proboscis. In *Apis* the tongue (fig. 3, *c*), or central part of the proboscis, is generally long, and the proboscis itself has two joints, one near the base, and another about the middle; that at the base directing it outwards, and that in the middle directing it inwards: when folded, the apex of the tongue points backwards. In *Melitta* the tongue (fig. 1, *a*) is short, and the proboscis has but one fold, which is near the base; and when folded, the apex of the tongue points forwards. These two groups are also subdivided by Kirby, and the character of each subdivision is given in detail; but he did not think proper to give names to these smaller groups. It has, however, since been thought necessary to consider the smaller groups as genera; and hence they have all been named, the greater portion of them by Latreille. When the smaller groups were considered genera, the greater ones became families, and are named *Apidæ* and *Andrænidæ* by Dr. Leach.

Fig. 1.



The under side of the Head of one of the Andrænidæ (Melitta, Kirby), showing the proboscis. *a*, the tongue

The species of Andrænidæ, which are very abundant during the spring months, frequent grassy banks; the males are generally seen flying about hedges. The females usually construct their nests underground; for which purpose they generally select a bank in a southern aspect: some species choose sandy situations, while others prefer a heavier soil. The female having fixed upon a convenient spot, excavates a cylindrical hole, from five or six inches to a foot in depth, and only just large enough to allow her to enter; at the bottom it is slightly increased in width, and rendered smooth by being lined with a glutinous substance. The labour of forming these cells is considerable, for the soil is removed grain by grain, and deposited round the entrance of the hole, so that a little hillock is formed. The cell being completed, her next object is to furnish it with pollen; this is collected from flowers, and carried on the tibiæ of the hinder legs, which are thickly furnished with tolerably long hair, among which the pollen is carried until she arrives at the cell. When a sufficient quantity of pollen is collected, and made into a kind of paste by the addition of a portion of honey, it is formed into a little ball, in which an egg is deposited; the mouth of the cell is then carefully closed, to prevent the entrance of other insects. The egg soon hatches, and becomes a larva, which feeds upon the pollen until it is all consumed; the larva then turns to a pupa, and the pupa to the perfect insect. It is remarkable that the *Andrænidæ* seldom make their appearance after the spring months and early part of the summer, although the eggs laid at that time have undergone all their metamorphoses (in many instances) by the autumn. The newly-disclosed insect remains all the intermediate time in a torpid state. We believe that the species only live one year, for in the autumn we have found many of them on the ground dead, and the inner part of their body devoured: this is probably done by a spider which is found in the same situations.

The habits of the species of *Apidæ* are more variable; many excavate their cells in wood; some, like the cuckoo, make use of the nests of other species; others again do not excavate cells, but make use of any hole already formed, or of some other situation, convenient for that purpose. Of this last description, a species of the genus *Anthidium* has afforded a remarkable instance. This bee is nearly the size of the hive-bee, but is broader in proportion, and is easily distinguished from all the hitherto-discovered British species, by having a series of bright yellow spots on each side of the abdomen. A female of this species has been known to build her nest in the lock of a garden gate. The nest consists of a number of cells formed of down collected from the anemone sylvestris, and probably from other woolly-leaved plants, scraped off by the bee with its jaws.

The flight of this insect is exceedingly swift; but when it has discovered a flower on which it intends to settle (generally that of the blind nettle), it stops suddenly, poises itself in the air for a few seconds, and then darts upon the flower, dislodging any bee which may have settled upon it before.

Sometimes it appears more anxious to dislodge other bees, and to prevent their gathering honey, than to collect for itself, for it flies about from flower to flower, and pounces upon all it meets with.

Anthophora retusa is another bee, which, in its flight, very much resembles the one just described. This bee is considerably larger than the hive-bee: the male is brown, sometimes inclining to an ochre colour, and is remarkable for the three long tufts of hair which are attached to the middle leg, two of them to the tip of the tibiæ (that on the posterior part being very long), and another to the tip of the tarsus. The female of this species is so much unlike the male, that it has been thought by many to be a distinct species. It is entirely black, except the outer side of the hinder tibiæ, which is covered with red hairs: it is without the tufts on the intermediate leg. This species constructs its cells in the sides of banks, generally choosing those which are perpendicular.

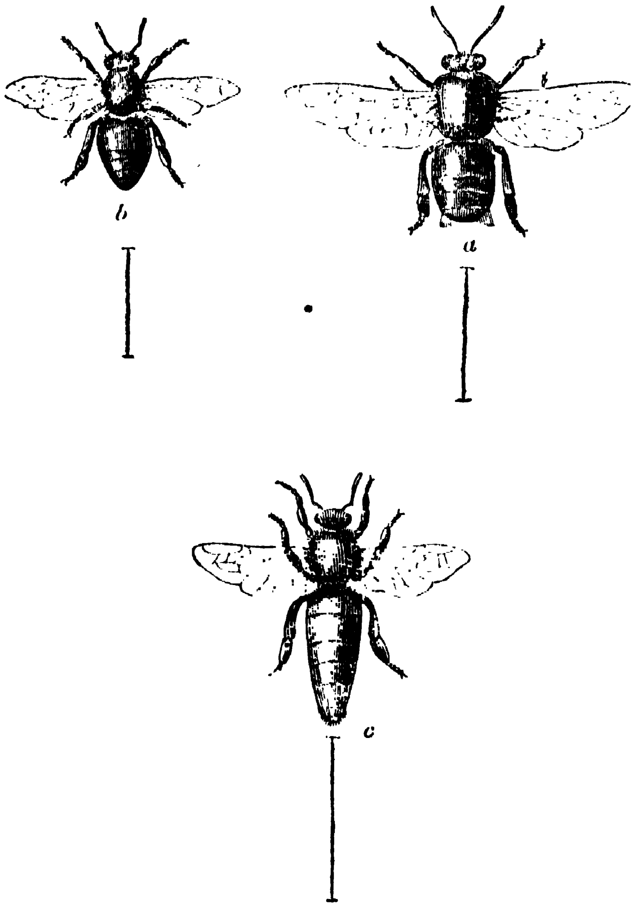
It is to this same family that the hive-bee belongs, to the history and economy of which we shall confine ourselves.

The *Apis mellifica*, hive-bee, or honey-bee, has for many ages justly claimed the attention and study of naturalists. Among the earliest of its observers may be enumerated Aristotle and Virgil; also Aristomachus of Soli in Cilicia, and Philiscus the Thasian. Aristomachus, we are told by Pliny, attended solely to bees for fifty-eight years; and Philiscus, it is said, spent the whole of his time in forests, investigating their habits. (Plin. xi. 9.) Both these observers wrote on the bee. In modern times the labours of Swammerdam, Réaumur, Bonnet, Schirach, Thorley, Hunter, Huber, and others, have added greatly to our knowledge of this interesting species.

The honey-bee always lives in society with many of its own species. In its natural state it generally constructs its nest in hollow trees; but throughout Europe it is now rather a rare occurrence to find it otherwise than domesticated.

Each society or swarm is composed of three descriptions of bees—the male or drone, the neuter or worker, and the female or queen.

Fig. 2.



The three descriptions of Bees of a hive. *a*, the Male or Drone; *b*, the Neuter or Worker; *c*, the Female or Queen.—The lines denote the natural length of each.

The Drone, or Male Bee, in general form, is almost cylindrical, the separation between the thorax and abdomen being much less distinct than in the females or neuters. The head is large, rather narrower than the thorax: the eyes are very large, and meet at the vertex of the head, but divide as they approach the forehead; close to the point of separation there are three stemmata. The antennæ are thirteen-jointed. The thorax is thickly covered above and beneath with short pale brown hairs resembling velvet. The length of the abdomen is scarcely greater than its breadth, and it is terminated obtusely: it has only four segments visible from the upper side, the anal segments being hidden beneath the others. The basal and apical segments are each thickly covered with pale hairs. The colour of the abdomen is black above, having the edge of each segment of a light brown colour; the underside of the body is also pale. The legs are black; the inner side of the hinder legs is covered with pale down. All the claws are divided, the inner part being nearly equal in length to the outer part. The wings are large, and rather longer than the body; the anterior wings are rather acute at the apex.

The drone may be readily distinguished from the queen and workers by its greater breadth, large eyes (which meet at the top of the head), and the abdomen having only four segments visible from the upper side. The wings are much longer in proportion than those of the worker or queen, for in this sex they reach beyond the extremity of the abdomen.

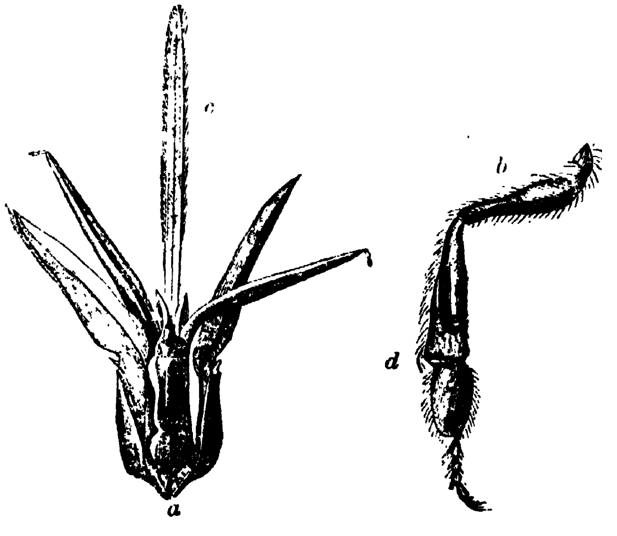
The number of drones in a hive is remarkably irregular, varying from six or seven hundred to two thousand; but the proportion is not regulated by the number of bees contained in the hive, for a small swarm will sometimes possess as many drones as a large one.

The time required to complete the metamorphosis of the drone is as follows. In three days after the deposition of the egg, the larva makes its appearance: about the middle of the seventh day from this time, the larva having then arrived at its full growth, spins its cocoon, a silken substance with which it lines the interior of its cell: this is accomplished in about a day and a half. It then turns to the pupa, and ultimately to the perfect insect, having been about four-and-twenty days from the laying of the egg to the coming forth in the winged state.

The Neuter, or *Worker*, is of a dark-brown colour, approaching to black: the head and thorax resemble those of the female, but the head has black hair on the vertex. The abdomen is conical, and composed of six distinct segments: the basal one is thickly covered with hair, the other segments are sparingly clothed. The legs are black: the plantæ of the hinder legs are transversely striated on the inner side. The wings when closed nearly reach to the apex of the abdomen.

In about four days after the egg of the worker has been deposited, the larva is hatched, and in five or six more (according to the weather) it is full grown; it is then sealed up in its cell by the nurse bees with a covering of farina mixed with wax. As soon as the larva is inclosed it spins its cocoon, which operation requires about thirty-six hours: it then turns to the pupa, and in about eight days more to the perfect insect; having been one-and-twenty days in existence, that is, from the time the egg was laid until the insect has attained its perfect state. The number of workers in a well-stocked hive is about fifteen or twenty thousand. The occupation of these bees is to collect honey, pollen, and propolis; to build the combs, and to attend upon the young.

Fig. 3.



a, the proboscis of the hive-bee; *c*, the tongue; *b*, the hinder leg of the worker-bee; *d*, the part on which the pollen is carried.

Honey is collected by means of the proboscis. To a common observer this instrument appears to be a single tube, through which it is thought the honey is conveyed to the stomach by suction; but if we examine the proboscis through a lens of very moderate power, we find that it is composed of five very distinct parts, a central stalk and four lateral ones, two on each side. The central part is that which is principally used in collecting honey: this part is not perforated, but is a flat cartilaginous substance, and is used as a tongue in lapping up the honey, which is then conveyed to the pharynx, and is afterwards disgorged into the cells of the comb, part being used for the purpose of feeding the young, and the remainder stored up for the winter's consumption.

Pollen is collected from the antheræ of flowers, and is carried on the outer surface of the tibiæ, or middle joint of the hinder leg: this part of the leg is very broad: on one side it is concave, and furnished with a series of strong curved hairs on its margins, forming a natural basket admirably adapted to the purpose for which it is used. This substance mixed with honey forms the food of the larvæ, for which purpose alone it is collected.

In many instances it is only by the bees travelling from flower to flower that the pollen or farina is carried from the male to the female flowers, without which they would not fructify. One species of bee would not be sufficient to fructify all the various sorts of flowers, were the bees of that species ever so numerous, for it requires species of different sizes and different constructions. 'M. Sprengel found, that not only are insects indispensable in fructifying different species of iris, but that some of them, as *I. Xiphium*, require the agency of the larger humble bees, which alone are strong enough to force their way beneath the stile flag; and hence, as these insects are not so common as many others, this iris is often barren, or bears imperfect seeds.'

Propolis is a resinous unctuous substance, of a reddish colour, and is collected from the buds of trees: it is not only used in lining the cells of a new comb, but it is sometimes kneaded with wax and used in rebuilding weak parts. It is also used in stopping all the crevices in the interior of a hive. The workers which arrive laden with this substance are relieved of their burthen by others; these in their turn distribute it among many, who employ it for the purposes above-mentioned.

Nature has provided checks to prevent the too rapid increase of the various species of insects. Among those of the hive-bee, the hornet and wasp, and two or three species of moths, commit great devastation. Wasps frequently take possession of a hive, and after destroying, or causing their weaker neighbours to desert the hive, consume all the honey it contains, and sometimes even construct their own nests in the hive.

Acherontia atropos, or the death's-head hawk-moth, which is almost as large as our common bat, sometimes makes its way into hives, and consumes much of the bees' stores. This insect has the power of emitting a peculiar sound, not unlike that of the queen-bee: this sound is supposed to have the same effect (that of rendering the workers motionless) as that emitted by the queen.

Two other moths commit great devastation in hives: these are small species (*Galleria alvearia*, and *G. melonella*— the honey-moth, and the honeycomb-moth), which, in spite of the guards constantly kept at the entrance of hives, gain admittance, and deposit their eggs in the combs. The larvæ hatched from these eggs form passages through the comb in all directions, spinning a silken tube as they proceed, which it appears is too strong for the bees to destroy, and of course they cannot sting the larvæ. These larvæ generally oblige the bees to desert the hive after a short time.

In attending upon the young the labour of the workers appears to be divided: a certain number always remain brooding over the cells and feeding them, while others are employed in collecting honey. It is these last that are the principal secreters of wax, and are called wax-workers: the former are called nurse-bees.

The *Queen-bee* is of a dark-brown colour: the head is thickly furnished with yellow hairs, except on the forehead, where the hair is nearly black; on the vertex there are three small convex simple eyes, or stemmata. The antennæ are yellow beneath and brown above, and composed of twelve joints, the basal joint is more than one-third of the whole length, the remaining joints are bent forwards, and at an angle with the first. The thorax is covered with pale-brown hairs. The abdomen is the shape of an elongated cone and nearly smooth, exhibiting six distinct segments above: the under side of the body and the base of each segment above are of a paler colour than the remaining parts. The legs are of a brownish yellow: the femora and tibiæ of the anterior, and the base of the femora of the posterior legs are brown. All the claws of the tarsi are divided, the inner division being much shorter than the outer one. The wings are short and small in proportion, scarcely reaching more than half the length of the abdomen.

This sex is furnished with a bent sting; in the neuter the sting is straight; the male has no sting. The queen-bee resembles the worker in the shape of the head and thorax; but the great length of the abdomen and the paler colour of the legs and antennæ are its chief distinguishing characteristics. There is but one queen in a hive, who is treated with the greatest attention by all the other bees. It might be wondered how they can distinguish the queen from any other bee, the interior of the hive being quite dark: in this the antennæ are their sole guide, for if the workers be prevented touching her occasionally with the antennæ they proceed as if she were lost. This has been satisfactorily proved by some ingenious experiments by Huber. If by accident the queen be killed, or if she die, her dead body is still treated with attention, and, for a time, even preferred to any other queen.

The queen being accidentally or intentionally removed from a hive, her absence is soon discovered and great disorder follows: but this is only temporary, for in a few hours preparation is made to replace her loss. The larvæ of neuters from two to three days old are selected for this purpose: the cells containing them are each enlarged by sacrificing three adjoining cells, and in this space the workers build a cylindrical tube which surrounds the young larvæ, which are then supplied with the same food as that given to the ordinary royal larvæ, and which is more pungent than that given to common larvæ. In about three days time a perpendicular tube is constructed and joined to the mouth of the cell just described; into this the larva gradually makes its way, moving in a spiral direction. It then remains two days in a perpendicular position, the head being downwards, after which it turns to the pupa and then to a queen. As several hatch nearly at the same time, the strongest stings the others to death, and becomes ruler of the hive. From this it is evident that the worker-bees are imperfect females, requiring only a slight difference of treatment in the larva state to become queens or fertile females.

If the queen be removed from a hive, and a stranger be immediately introduced, she is surrounded and kept prisoner until she dies of hunger: for the workers never sting a queen. If, however, eighteen hours have elapsed since the loss of the former queen, the stranger is better received, for although she is at first surrounded, she is ultimately set at liberty, and treated with all the usual attention; but if four-and-twenty hours have elapsed before the strange queen be introduced, she is at once admitted to the sovereignty of the hive.

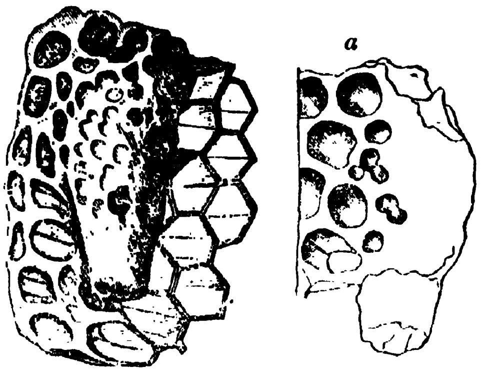
While the queen remains in a hive, the introduction of a strange queen will occasion a disturbance, somewhat similar to that which takes place when two or three young queens escape from their cells at the same time: both the stranger and the reigning queen are surrounded by the workers, and the escape of either being thus prevented, they are soon brought into contact. A battle ensues, which ends in the death of one of them, and the other then becomes ruler of the hive.

The sole occupation of the queen is to lay eggs in the various cells prepared by the workers for that purpose, for she takes no care of the young herself. Until she is about eleven months old, the eggs laid are nearly all such as will turn to workers, but at the completion of that period, which most frequently happens in the spring time, the queen commences the great laying of the eggs of males; at this time the queen will lay from two to three thousand eggs, sometimes from forty to fifty a day being laid during the months of March and April. There is also another laying of the eggs of males in the autumn, but this is not so considerable. In the interval, the eggs of workers are almost exclusively laid.

There seems to be a relation between the laying of the eggs of males and the construction of royal cells, for the workers always commence the construction of the latter, at the time that the female is laying the eggs that are to turn to drones.

The royal cells are very different from those of the male or worker, and are generally suspended from the edges or sides of the comb: their number varies from two or three to twenty, though the latter is a very unusual number. In form they are very much like a pear, having the thickest end joined to the comb, the other end, at which part the mouth or entrance of the cell is situated, hanging downwards.

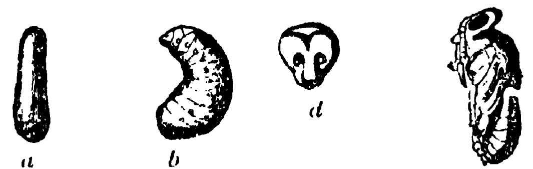
Fig. 4.



The queen's cell; *a*, side view of the same.

In these cells the queen deposits the eggs of future queens, at intervals of at least a day, and always during the period of laying the eggs of males. When the queen is about to lay, she thrusts her head into a cell to ascertain its fitness; she then inserts her abdomen, and in a few seconds withdraws it, leaving an egg at the bottom of the cell fixed in an upright position by a glutinous substance at one of its ends.

Fig. 5.



a, the egg; *b*, the larva; *c*, the pupa of the worker-bee; and *d*, the head of the larva magnified.

The egg is about one-twelfth of an inch long, and of a cylindrical form, with rounded ends. When the larva emerges from the egg, it is immediately supplied with food by the nurse-bees. This larva may be seen lying in a curved position at the bottom of the cell, where it continues to grow until it has completely filled up the space; when it is full grown it lies horizontally with its head towards the entrance. The food given to the larva is a mixture of farina, honey and water, which is converted into a whitish jelly by elaboration in the stomachs of the nurse-bees: the proportions of farina and honey vary according to the age of the young, and we believe that the food is not given directly to the larva, but disgorged into the cell, so that the insect is surrounded with it. But when the larva is nearly full grown, its food is sweeter (probably containing a greater proportion of honey), and is applied by the nurse-bees directly to its mouth, somewhat in the manner of a bird feeding its young.*

The drone and worker-bees are of a greyish colour when they first leave their cells, and several days elapse before they are strong enough to fly; but the queen is kept prisoner in her cell for some time after she has assumed the imago state. The reasons for this imprisonment we shall presently show.

When the larvæ in the queens' cells are about to change into pupæ, the old queen begins to exhibit signs of agitation—running carelessly over the cells, occasionally thrusting her abdomen into some of them, as if about to lay, but withdrawing without having done so, or perhaps laying them on the side of the cell instead of at the bottom. She is no longer surrounded by her usual circle of attendants, and her agitation being communicated to all she passes, at length a general confusion is created; till at last the greater portion of the bees rush out of the hive, with that queen at their head. It is thus that the first swarm quits the hive, and it is invariably conducted by the old queen.

At any other time the queen would have been unable to fly, the great number of eggs contained in her abdomen rendering her too heavy: this however is sufficiently reduced after the great laying just described, to enable her to fly with ease.

An unerring instinct obliges the queen to leave the hive at this time, for two sovereigns never can co-exist in the same community; and had she not left it, the young queens (now just about to quit their cells) would inevitably have been killed by her. Let us now observe what is going on in the hive which has just been deserted by its queen. It would seem as if it were too much reduced by the departure of the swarm; but it must be borne in mind that this event never occurs except in the middle of the day, and during very fine sunny weather, when a large portion of the bees are abroad gathering honey and pollen; and if the hive contain a numerous colony, these, on their return, together with those which have not been disturbed during the general confusion, and a considerable number of young brood continually hatching, form a sufficient stock, and perhaps even enough to send off another swarm.

In two or three days' time from the leaving of the first swarm, perfect order is restored in the hive; and the nurse-bees continue to attend upon the young, carefully watching the queen's cells, and working at the outsides by removing the wax from the surface. It is said that the wax is removed in order to facilitate the exit of the young queen; but although the removal of it may thus be of service, we are not inclined to think it is done for that purpose.

The eggs are laid in the royal cells at intervals of at least a day, and it consequently follows that the completion and closing of these cells must take place at different times we say completion, for at the time the queen lays the eggs the cells are only half formed, and resemble the cup of an acorn. When the cells have been closed about seven days, the young queen cuts away with her jaws the part of the silken covering at the mouth of the cell, and, if permitted, would make her escape; but the bees guarding the cells solder the covering with some particles of wax, and keep her prisoner about two days, in which time she obtains sufficient strength to be able to fly immediately on quitting her prison. It is difficult to imagine by what means the bees guarding the royal cells can judge of the fitness of the enclosed female for liberation. The most probable conjecture is, that they judge by the quality of the sound emitted by the prisoner at this time. This sound consists of a number of monotonous notes, so rapidly repeated as almost to appear one continuous sound. The sound is produced by the vibration of the wings, and probably becomes sharper and more audible as the bee acquires strength.

The young queen upon being liberated immediately approaches the remaining royal cells, and would destroy their contents, by tearing them open and mortally wounding her rivals with her sting; but this is not permitted—for so long as there is a sufficient number of guards, they bite and drive her away. She has the power, however, of arresting this ill-treatment for a while, by emitting a peculiar sound, which has such an effect on the sentinels that they remain motionless; and she sometimes takes advantage of this, to make an attack upon the royal cells. But as the sound ceases when she moves, the charm is dissolved, her guards recover their power, and she is again driven back.

After a time, the young queen, owing to her strong desire to attack the royal cells, and the constant repulses she meets with, becomes extremely agitated, and by running quickly over the cells and groups of workers, communicates her disorder to a great portion of the bees, so that a large number quit the hive and cluster about the outside—and after a short time the young queen leaves the hive with a swarm. Thus it is that the second swarm is thrown off. It seldom happens that a hive sends off more than two or three swarms; after which, unless the hive be an extremely populous one, there are so few bees left, that there is not a sufficient number to keep proper guard over the royal cells. The young queens consequently make their escape, two or three at a time, in which case a contest takes place between them, and the strongest remains queen of the hive, after destroying all the royal larvæ and pupæ that remain.

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* We have fed the larvæ of wasps (which are very closely allied to the hive-bee in habits) by means of a little piece of paper screwed to a point, and dipped into some sugar and water; they immediately opened their mouths on being touched, and sucked the sugar from the paper. The neuter-wasps touch the larvæ with their antennæ, upon which, if the larvæ require food, they immediately open their mouth and are supplied from the tongue of the wasp.

But if the hive be an unusually populous one, there may be four or five swarms sent off, all accompanied by the same circumstances as those just related. In case a hive is poorly stocked at the time of the great laying of male eggs, no royal cells are built, and consequently no swarms leave. After the swarming, a general massacre of the drones takes place: these defenceless individuals (for the male has no sting) are stung to death by the neuters.

When a swarm quits a hive, it usually clusters on a tree or bush in the neighbourhood, and if it be not hived it will shortly leave this situation, and take possession of an old tree or part of an old building. It is said that bees send out scouts before leaving the hive, to search for a convenient situation for their new abode, and that they may be seen going backwards and forwards to the spot fixed upon, some little time before the swarm departs. The clustering of the swarm probably proceeds from a desire in the bees to be congregated together prior to their last flight. As soon as the bees have taken possession of a new abode, or have been hived, they commence building the comb.

It has been stated that the first swarm is always conducted by an old queen, and the following swarms by the young queens as they are successively hatched. The latter are in a virgin state, but not so the former, nor do these require farther intercourse with the male. About two or three days after quitting her cell, and the fifth day of her existence in the winged state, the young queen quits the hive, and after reconnoitring its exterior, and making herself acquainted with its situation, by flying from it and returning several times, she then soars high in the air, forming spiral circles as she ascends. This ascent is generally preceded by a flight of drones, and it is at this time (whilst on the wing) that the sexual intercourse takes place. The queen is never observed to quit the hive but at this time; and hence it is supposed that this one intercourse is sufficient to fertilize all the eggs she may ever lay. Huber decidedly ascertained that it was sufficient for two years. We think it very improbable that a queen would live much beyond that time. In about six and forty hours after the intercourse with the male has taken place, at which time a part of the comb would be constructed in the new hive, the queen commences laying her eggs; those first deposited being such as will turn to workers, as before described.

The construction of the Comb.—In the *Introduction to British Entomology* by Kirby and Spence, after referring to the various accounts of antient and modern writers on this subject, it is observed, 'still the construction of the comb of the bee-hive is a miracle which overwhelms our faculties.' John Hunter, who was the first to discover the true origin of wax, imagined that the waxen scales (which we shall hereafter mention) bore some proportion to the different parts of the cells, in the formation of which they were used, and thus furnished a guide to their construction. Some naturalists have conjectured that the antennæ, mandibles, and other parts of the body were used to measure the work, and from this they have endeavoured to account for the accuracy of their proceedings. The latter conjecture appears incompatible with instinct; while the well-authenticated mode of proceeding in the construction of the comb throws great doubt on the former.

Upon examination of various combs, the partitions between all the ordinary cells (both at the sides and bottoms) are found to be exactly the same in thickness, and the cells hexagonal with angular bottoms. Exceptions to this general rule are occasionally found, and it is by observing these exceptions with attention—by observing the various modifications of the work under extraordinary circumstances, that some idea of the principles which guide the bee in its operations may be formed. The royal cell is a remarkable exception; its form we have already described. In the original construction of this cell, a profusion of material is always disposed of, particularly at the junction of the cell with the comb. The extra quantity of wax in this part, and on the surface of the cell (which is also unusually thick) is, however, soon reduced by numerous circular excavations, the depth of which varies according to that of the wax, and in the mass nearest the comb they actually become cells, though, in most instances, unfit for use. These cells are invariably cylindrical, with concave bottoms, except they come in contact with others, in which case the wax is always removed from the interstices thus formed, either at the sides or at the bottoms; and the partitions are thus reduced to the same thickness as those between the cells constructed in the ordinary way. Hence we frequently find, in these parts, cells with one side circular and the other angular; the situation of the angles being invariably determined by the position of those cells with which they are in contact.

To work in circles or segments of circles appears most compatible with animal mechanism acted upon by instinct, for we observe that the works of almost all insects (perhaps we may say almost all animals) proceed in circles or segments of circles. The cells of almost all the various species of bees are of this construction, and we find that, under peculiar circumstances, those of the hive-bee are so likewise, as in the case of the queen's cell, and in some of those cells close to it, and sometimes in other parts of the comb, in cases where an accident has been repaired.

If some hive-bees could be made to work in a large solid mass of wax, the first cell formed would most probably be cylindrical, with a hollow circular bottom; this would also be the form of the following cells unless they came in contact with each other; and, in this case, supposing the circumferences of three cylinders were to touch, the bees working in each of these cylinders would cut away the wax at *a*, *a*, *a* (fig. 7). But supposing the wax block were excavated on one of its sides, into the greatest number of equal-sized cylinders that it would admit of, it would then follow that each cylinder would be surrounded by six others, this being the only number of equal-sized circles which may be placed round one of the same magnitude: by the same rule of removing the wax from the interstices, each of these cylinders would become hexagons. Again, supposing this block to be a flat mass of equal thickness in all parts (the ordinary thickness of a comb), this block being cut into cylinders of equal diameter on both sides, and the base of each cylinder being exactly over parts of three opposing ones (as represented below), when the wax is cut away at the interstices, as at the sides, it follows that the bottoms of the cells will be each composed of three equal rhombus-shaped pieces. Hence we have cells exactly like those of the hive-bee, but not constructed in the ordinary way, though upon such principles as analogy points out (a circular form being the basis of the work*), and in such a way as we have observed they do occasionally proceed.

Fig. 7.

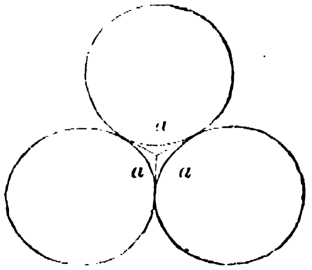
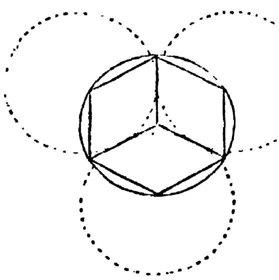


Fig. 8.



Let us now examine the construction of the comb in its usual way of proceeding:—

The first operation is the formation of wax: this is not, as many have supposed, the farina collected from flowers, but is secreted by the insect at the time of building the combs. For this purpose the wax-workers suspend themselves in festoons from the top of the hive. Those which first reach the top fix themselves by the claws of the fore-legs to the roof, and are followed by others which attach themselves to them, until an inverted cone or festoon of bees is formed, each end of which is attached to the roof of the hive. Before the commencement of the new comb, the interior of a hive presents a series of festoons of this description, intersecting each other in all directions, the bees remaining in perfect repose.

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* If we allow that the basis of the work of the hive-bee be circular, the royal cell forms no exception to the general rule, so far as the principle of its construction is concerned.

At this time the wax is secreted and makes its appearance in little scales which exude between the segments on the under side of the abdomen, eight scales being visible in each bee. The wax being secreted, one of the bees commences the comb; having detached itself from the festoon, it makes its way to the roof of the hive, and after clearing a space by driving away the other bees, it detaches one of the scales from the abdomen by means of its hinder legs: this is then conveyed by the fore-legs to the mouth, where it is masticated, and impregnated with a frothy liquid by the tongue, in which process it obtains a whiteness and opacity which it did not before possess. The particles of wax are then applied to the roof of the hive. Another scale undergoes the same process, and is attached to the first. The bee thus continues labouring until all its scales are disposed of; it then quits its situation and is followed by another bee, which proceeds with its scales in the work already begun, depositing the wax in a straight line with the former deposition. The same operation is performed by many other bees, until a considerable block is deposited. This block is generally about five or six lines* long, the height two lines, and the thickness half a line; and it is upon this that the formation of the cells commences.

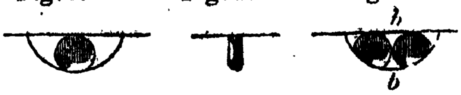
We have seen that the foundation of the block is the work of one bee, so likewise is the commencement of the cells;—the former is the work of what is called the wax-workers, which, we are informed by Huber, do not possess the power of sculpturing the cells:—the cells are made by the sculpturer-bees, who are smaller than the wax-workers. No sooner is the block large enough to admit a sculpturer-bee between the wax-workers, than the excavation commences There seems to be an instinctive desire to perform the work of excavation wherever there is room, even though there may not be sufficient to form a perfect cell; for we never observe a solid piece of wax in any part of a comb. On the contrary, if by any accident there has been space unoccupied by cells, we find that the wax has been excavated at that part as much as was practicable.

The bee, impelled by instinct to deposit wax and to excavate, and also guided by an acute sense of feeling in the antennæ (probably through the elasticity of the wax), as to the degree to which the excavation should proceed, forms the comb; and in so doing it seems to act, not from choice, but from a necessity imposed upon it by two antagonist principles, one causing it to deposit and excavate wax, and the other acting through the antennæ, and limiting the degree of excavation.

It is to this desire for performing the work of excavation that we attribute the small excavations about the royal cells, which are said to be for the purpose of facilitating the exit of the young queen. If the wax were removed for that purpose, we do not see why the operation should not be confined to that part through which she makes her escape. On the other hand, if from the wax of the royal cells being thicker than it is in other parts of the comb, the workers are induced to make excavations, and desist only upon the thickness being reduced to that of the ordinary partitions, it follows that it will at last become uniformly thin, as described by Huber; the reason here given differing from Huber's, but we think more in accordance with the habits and economy of the animal.

In forming the cells, a hollow is first excavated on one side of the wax block; this excavation is rather less than the width of a cell, and is immediately followed by two of a similar description on the opposite side of the block. The particles of wax removed in excavation are kneaded by the jaws of the bee and deposited on the edges of the intended cells; the two latter excavations (*b*, *b*, *fig.* 13) are necessarily on each side of the first (*a*, *fig.* 13), though close to it. In placing the two last-mentioned cells, the bees avoid the opposite part on account of the thinness of the wax, and the size of the wax-block will not admit of their being remote from the first.

Fig. 9. *Fig.* 10. *Fig.* 11.



Front. Side. Back view.

The front, side, and back views of the block on which the first excavations for the cells are made.

Fig. 12.

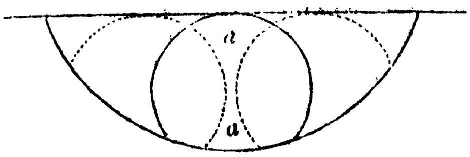


Fig. 13.

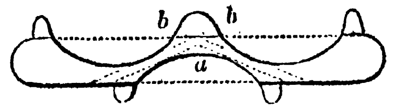
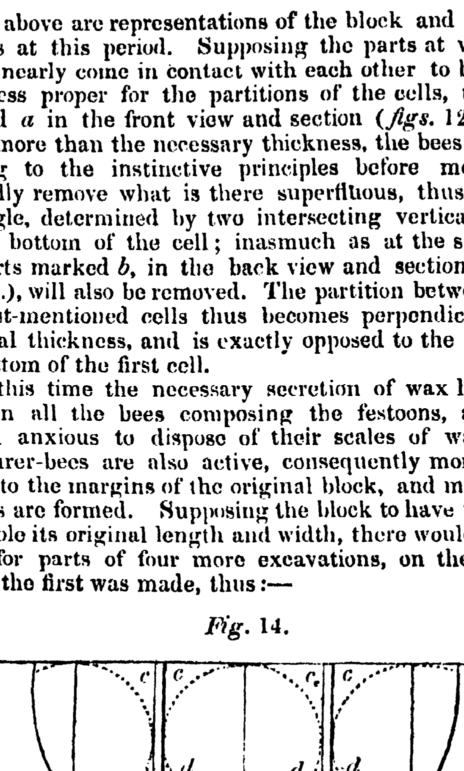


Fig. 12, Front view magnified. Fig. 13, Transverse section through the same.

The above are representations of the block and its excavations at this period. Supposing the parts at which the circles nearly come in contact with each other to be of the thickness proper for the partitions of the cells, the parts marked *a* in the front view and section (*figs.* 12 and 13) being more than the necessary thickness, the bees will (according to the instinctive principles before mentioned) naturally remove what is there superfluous, thus forming an angle, determined by two intersecting vertical planes, at the bottom of the cell; inasmuch as at the same time the parts marked *b*, in the back view and section (*figs.* 11 and 13.), will also be removed. The partition between these two last-mentioned cells thus becomes perpendicular and of equal thickness, and is exactly opposed to the angle at the bottom of the first cell.

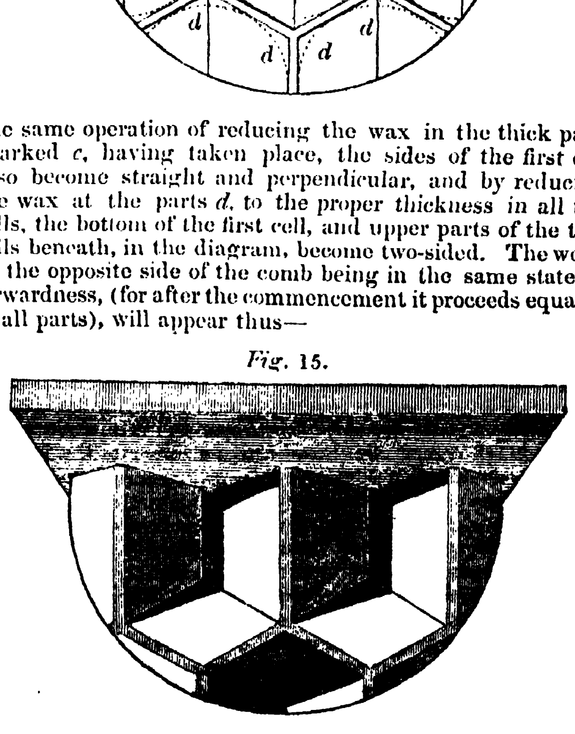
By this time the necessary secretion of wax has taken place in all the bees composing the festoons, and they are all anxious to dispose of their scales of wax. The sculpturer-bees are also active, consequently more wax is added to the margins of the original block, and more excavations are formed. Supposing the block to have increased to double its original length and width, there would then be room for parts of four more excavations, on the side on which the first was made, thus:—

Fig. 14.



the same operation of reducing the wax in the thick parts marked *c*, having taken place, the sides of the first cell also become straight and perpendicular, and by reducing the wax at the parts *d*, to the proper thickness in all the cells, the bottom of the first cell, and upper parts of the two cells beneath, in the diagram, become two-sided. The work on the opposite side of the comb being in the same state of forwardness, (for after the commencement it proceeds equally at all parts), will appear thus—

Fig. 15.



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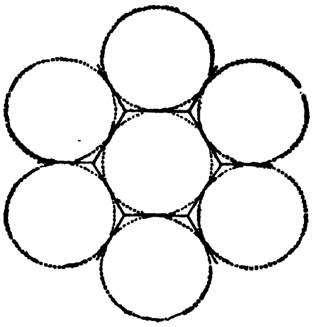
* A line is the twelfth of an inch.

In the above figure the angles at the bases of the cells are cut into the partitions of the opposing cells, and hence it is clearly seen that, from the position of those cells, the perpendicular partitions of the cells on this side must be longer than those of the other, and that the cells themselves must have three quadrilateral plates for their bases.

In carrying up the sides of the cell, the form is regulated by the intersection of the surrounding circles, as represented in *fig.* 16. But the circles described in *fig.* 16, parts of which are shown in most of the other figures, represent those which are *enclosed by the hexagons,* whereas we believe the natural circumference of each cell (supposing it to be cylindrical) is that *by which the hexagon is enclosed;* hence it will be necessary to imagine the circles partly intersecting each other.

Fig. 16.



It has now been demonstrated that the cells of the first tiers on each side are pentagonal; that the bases of those on one side are each composed of two plates, while those of the other side are each composed of three plates; and that, according to the laws laid down, they could not have been otherwise: now as this accords with all the accounts given of the proceedings in the construction of the comb, it seems to prove that the laws which we have laid down, as guiding their formation, are correct.

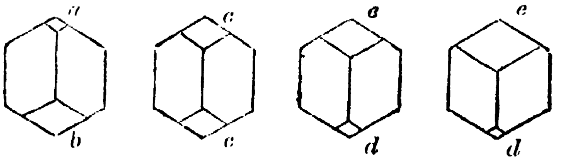
We have now followed the progress of the work until the commencement of the second tiers of cells: it is unnecessary to describe the formation of these and the following tiers. It is shown, that, according to certain laws, the first tiers of each side of the comb become pentagonal, and according to the same laws it is clear that the second and following tiers must become hexagonal; for the two sides forming the lower boundary of each cell of the first tier, also form the upper boundaries (or partitions) of two cells of the second tiers. As the upper part of the first tier is determined by the roof of the hive (represented by the horizontal line in diagram 14), so is the *upper portion* of the cells of the second tier determined by the *lower portion* of those of the first tier: thus, the upper portion of each cell of the second tiers being composed of two planes meeting at an angle, and the work continuing, as in the progress of the first tier, four more planes will be constructed to form the lower portion, and complete the hexagon. It is thus that all the ordinary cells of a comb are hexagonal, and we believe it is clearly shown that they could not be otherwise, according to the mode of proceeding in their construction. Their form depends entirely upon the commencement of the work, which necessarily throws the cells in such a position, that each cell must be surrounded by six others, and consequently have six sides, each side being the common partition of two cells; and, so long as the cells are of equal diameter, they must each be opposed to parts of three other cells on the opposite side of the comb, in such a way, that supposing the external surface of the bottom of each cell were hemispherical (which would be the case were the wax not removed from the interstices), each hemisphere would touch three others; but the wax *being removed* from the interstices and reduced to an equal thickness at all parts;—and the bases of the sides of a cell not being all in the same plane—the bottom of each cell is thus formed into three equal rhomboidal pieces in three different planes, the three angles at their junction being respectively the lowest parts, or the farthest removed from the mouth of the cell.

In working the cells, the wax is always found a little thicker on the edges, thus giving additional strength to them. It has been asserted that this extra thickness is added upon the completion of the cells; but as we have never observed a cell, even though in a state of progress, without it, we think the more probable conjecture is, that the bees, in working the sides of the cells, desist upon arriving near the top, and thus leave that part thick, as it is found to be.

The ordinary cells of a comb are of two sizes; those designed for the male larvæ being rather larger than those of the ordinary size in which the neuter larvæ are reared. The width of the former cells is about $3\frac{1}{3}$ lines, and that of the latter $2\frac{2}{5}$. A comb is always commenced with the small-sized cells. Hence, when the larger cells are constructed, instead of being opposed to three others, they encroach upon a fourth, and their bases are consequently composed of four plates instead of three: at first a minute lozenge-shaped piece is visible at the top of the basal part (*fig.* 17, *a*); this gradually increases in size as the one on the opposite side decreases, *fig.* 17, *b*.

When the full size of the cell is attained, the top and bottom pieces (*fig.* 17, *c*, *c*) are equal; but as soon as a sufficient number of the larger cells is formed, the lower lozenge gradually decreases while the upper one (*fig.* 17, *e*, *e*) increases in size, until there are but three plates again visible (*fig.* 17, *d*, *d*).

Fig. 17.



It is almost always found that the excavations for cells, formed by different insects, in whatever situations they may be, are exactly proportioned to their size. Hence it is extremely difficult to account for the enlargement of the cells of the bees, as just described. We will, however, venture an opinion, in hopes of calling attention to the subject.

In the former part of this account it has been stated, that no sooner is a portion of the comb finished than the queen deposits eggs in the various cells, and that the cells first formed are always those of the smaller size, which are excavated by what are termed the sculpturer-bees, or nurses, which are less than the wax-workers.

We imagine, that when the eggs hatch, the small bees, or nurses, are more particularly engaged in attending upon the young, and that the large-sized workers then commence the excavation of the cells themselves, and thus make cells of a larger diameter than those made by the nurses.

Huber states that the description of bees called wax-workers have not the power of sculpturing the cells: but at the same time he owns that he was unable to follow the proceedings in the construction of a comb for any considerable time after the commencement. During the time of his observations, however, he invariably found that the smaller bees were the sculpturers.

The interior of a hive consists of a number of combs arranged perpendicularly; these are fixed to the roof of the hive, and are parallel to each other, the space between them being about half an inch. When the first comb has advanced in size, so as to consist of two or three rows of cells, two other combs are commenced, one on each side of it; the work proceeding as in the first: these again are followed in their turn by two others. As the comb advances in size it assumes a form nearly circular, and is still joined to the roof of the hive only; the work proceeds by adding wax to the margin of the comb exactly at the junction of the opposing cells, and this is no sooner deposited than it is cut away and worked into cells. These cells are not equally deep throughout the comb, but their depth gradually decreases as they approach the margin: a comb in its progress has the form of a double convex lens.

The form of the comb, as above described, is that of a new one; but in the honey-storing season, the sides of the comb are joined to those of the hive, to give strength to hold the additional weight; the cells are also lengthened, so that the surface of the comb then becomes even. The cells are not quite horizontal, the orifice being generally a little higher than the base, most commonly four or five degrees, but sometimes considerably more. When a comb is first completed, it is of a dull white colour, and of a weak substance; it is however soon strengthened, by adding propolis to the margin of the cells, and lining their interior with threads of the same material.

The cells of a comb are used for the purposes of storing up honey for the winter, and in them the larvæ are reared. Pollen, or bee-bread, is also stored up in some of the cells. Many larvæ may be reared in the same cell, and as each spins a cocoon, or web, on its sides which is never cleared out, it thus becomes at last too contracted to contain larvæ; it is then used for one or both of the other purposes above mentioned. When a hive is well stored with combs having empty cells, the workers disgorge the honey into these receptacles; but in case cells are wanted, they retain the honey, and wax is secreted for the purpose of building more combs.

Honey is never consumed but in cases of the greatest necessity; but as soon as a cell is filled, it is sealed up with a waxen covering.

During the progress of a comb in building, the slightest interruption is likely to alter its form; and as the space between each is always kept exactly the same, it frequently happens that the whole of the combs are affected by any accident happening to one. *Fig.* 18 illustrates an instance of this sort, which we have seen—

Fig. 18.

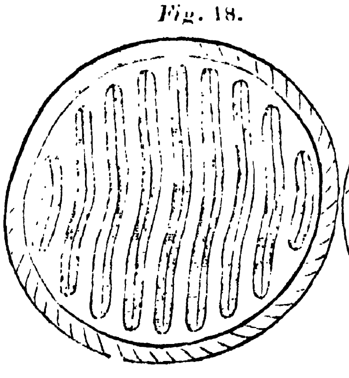
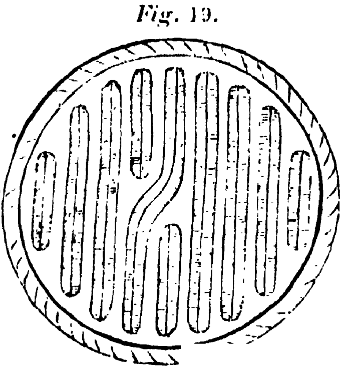


Fig. 19.



but it also frequently happens that an interruption in one comb is corrected in those that follow. A curious instance of this nature we have also observed. See *fig.* 19.

In both these instances the form of the comb was affected by a stick being placed across the middle of the hive, to enable the owner (as we believe) to remove the hive with less danger of the combs giving way.

The latter case is so ingenious, that at first it appears more like an operation of reason than instinct: it is nevertheless to be accounted for, upon the instinctive principles with which these animals work. The course of the first comb being altered, the two adjoining ones would naturally follow its line: but if those next beyond them on each side were in a state of forwardness, the workers would be obliged to discontinue the two former, as shown in the figure, to avoid coming in contact with the two latter; for it appears to be a law in the construction of new combs, that a certain space should be always left at the margins as well as between them.

In addition to the construction of the comb, the bees, when in danger of attacks from their enemies, barricade themselves. Sometimes the entrance of the hive is nearly blocked up with wax and propolis, and at others a wall of that substance is constructed just behind that part; this wall is perforated with holes only just large enough to admit of the egress and ingress of the bees themselves. The fortifications are occasionally much more ingenious and complicated. Weak hives are sometimes exposed to the attacks of strange bees, and in such cases fortifications would be constructed; but it is more particularly to prevent the ravages of the *Acherontia atropos* that this care is taken. As this moth only makes its appearance in the autumn, these fortifications are removed in the spring, a time when they would be of the greatest inconvenience, as the hive is then extremely populous. Huber states that 'the entrances formed in 1804 were destroyed in the spring of 1805. The sphinx (*Acherontia atropos*) did not appear that year; but it returned in great numbers in the autumn of 1807. By speedily barricading themselves, the bees prevented their threatened ravages; but before the departure of swarms in May, 1808, they demolished the fortifications, whose narrow passage prohibited free egress to the multitude.'

The facts related in the foregoing account are such as we find, for the most part, well authenticated by the various authors who have written on the subject; but there are many more interesting circumstances related in each, which we think not yet quite satisfactorily confirmed.

The principal authors who have written upon the subject are as follows:—

Aristotle.—*History of Animals*, book v.

Pliny.—*Natural History*, book xi.

Swammerdam.—A translation into English, from the Dutch and Latin original edition of his work, has been made by Thomas Floyd, entitled *The Book of Nature, or the History of Insects.*

Réaumur.—In the fifth volume of his *Mémoires pour servir à l'Histoire des Insectes.* 1734-1742.

Schirach.—*Histoire Naturelle de la Reine des Abeilles.* 1771.

Riem.—*Contemplation de la Nature.*

Bonnet.—Tom. v. 4to. edition, and tom. x. 8vo.

John Hunter.—In the *Philosophical Transactions for* 1792.

Thorley.—*Female Monarchy; being an Inquiry into the Nature, Order, and Government of Bees.*

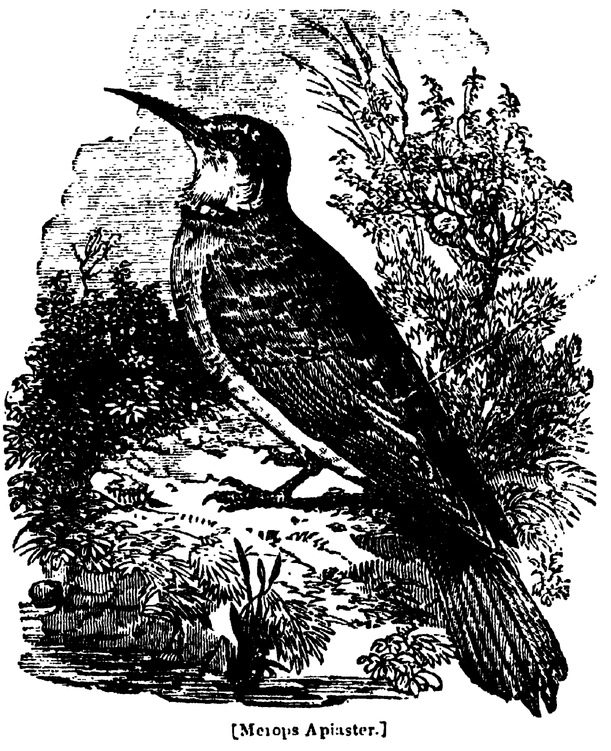
Wildman.—*A Complete Guide for the Management of Bees.* 1819.

Huber.—*Nouvelles Observations sur les Abeilles.* A translation into English of this work was published in the year 1821, entitled *New Observations on the Natural History of Bees.*

Edward Bevan, M.D.—*The Honey-Bee; its Natural History, Physiology, and Management.* 1827.

BEE-EATER (zoology), the vernacular name for a species of the genus *Merops*, Linn., one of the family *Meropidæ*, and of the syndactylous tribe, which have the external toe nearly as long as the middle one, and both joined together up to the penultimate articulation.

The birds of this genus take their prey, consisting of wasps, bees, &c., like the swallows, while on the wing; and, as Cuvier observes, it is remarkable that they are not stung by those insects: the species are numerous, and many are figured by Levaillant. Their nests are formed in the banks of rivers, where they dig deep holes; and their geographical distribution is over the warmer regions of the old continent, Java, &c., and New Holland (Paramatta), none of the genus having been found in America, where their place appears to be supplied by the *Motmots* (*Prionites*, Illiger). Their brilliant plumes of colours, which change according to exposure to light, the prevalent hues being azures and greens, remind the observer of the kingfisher's gorgeous dress. A familiar example of the genus occurs in the bird whose English name is at the head of this article—the *Guêpier vulgaire* of the French, the *Mangia-api* and *Lupo d'Api* of the Italians, the Μέροψ of the Greeks, and *Merops Apiaster* of Linnæus.



[Merops Apiaster.]

In the south of Europe it is frequent in the summer. Sicily, Sardinia, Italy, the South of France, and Germany possess it, and on the southern border of Russia it is numerous. It is found in Turkey and in the Archipelago, and in autumn migrates towards Egypt. It breeds in holes in the banks of the Don and the Wolga, laying from five to seven white eggs in a nest composed of moss, &c. Hasselquist says that it is found in the plains of Galilee, and that it is called Varuar by the Arabs; and Temminck, that the individuals found at the Cape of Good Hope differ in nothing from those killed in Europe. Ray, in his edition of *Willughby*, observes, 'it is not unfrequent in the Campagn of Rome: for that we saw it there to be sold in the market more than once. It is not found in England that we know of. Bellonius writes that it is so common in Candy, that it is seen everywhere in that island. Aristotle tells us that it feeds upon bees, whom all other writers of the history of animals do therein follow. But it feeds not only upon bees, but also upon *Cicadæ*, *beetles*, and other insects. Yea, as Bellonius relates, upon the seeds of the nipplewort, bastard parsley, turnip, &c., not abstaining from wheat and other grain. From its exact agreement in the shape and make of its body, bill, and feet with the king-fisher, we suspect that it likewise preys upon fish.

'Bellonius, in the first book of his observations, writes thus concerning the *Merops*. Flying in the air it catches and preys upon bees, as swallows do upon flies. It flies not singly but in flocks, and especially by the side of those mountains where the true thyme grows. Its voice is heard afar off, almost like the whistling of a man. Its singular elegance invites the Candy boys to hunt for it with *Cicadæ*, as they do also for those greater swallows called *Swifts*, after this manner:—bending a pin like a hook, and tying it by the head to the end of a thread, they thrust it through a *Cicada* (as boys bait a hook with a fly), holding the other end of the thread in their hand. The *Cicada* so fastened flies, nevertheless, in the air, which the *Merops* spying, flies after it with all her force, and catching it, swallows pin and all, wherewith she is caught.'

The passage in Aristotle, mentioning the *Merops* as one of the enemies most destructive to bees, is in the 40th chapter of the 9th book of his *History of Animals*; and there are others in the 1st chapter of his 6th book, and in the 13th chapter of his 9th, wherein he notices the peculiarity of its making its nest in holes in the earth*.

The species may *now* be considered as an occasional visitant to this country. In the third volume of the *Transactions of the Linnæan Society* will be found the following extract from the minute-book, recording the first instance of its appearance:—

'July 2, 1794.—The president communicated an account of *Merops Apiaster*, the bee-eater, having been shot (for the first time in Great Britain) near Mattishall, in the county of Norfolk, by the Rev. Mr. George Smith. The identical specimen was exhibited by permission of Mr. Thomas Talbot, of Wymondham. A flight of about twenty was seen in June, and the same flight probably (much diminished in number) was observed passing over the same spot in October following.' There is a specimen in the British Museum with 'Devonshire' on the label.

BEECH-TREE. [See Fagus.]

BEEDER, a considerable province of Hindustan, forming part of the dominions of the Nizam, and lying between 17° and 20° N. lat. It is bounded on the west by Bejapore and Aurungabad; on the north by the latter province and Berar; on the east by Gundwana and Hyderabad, which last-named province forms also its southern boundary.

The province of Beeder is divided into seven districts, viz., Calberga, Naldroog, Akulcotah, Calliany, Beeder, Nandeer, and Patree.

The surface of the province is hilly, but cannot be called mountainous. It is watered by several small streams, and is intersected by the Beemah, Manjera, Kistna, and Godavery rivers. The Beemah, which is considered a sacred river by the Hindus, is a principal branch of the Kistna, and rises in the mountains on the north of Poonah. Passing within 20 miles east of that city, it flows with many windings in a south-easterly direction, and after a course of nearly 400 miles it falls into the Kistna near Eidgheer in Hyderabad. The Manjera rises about 50 miles south-east from Ahmednuggur, and flows in a south-easterly direction past the city of Beeder, and within a few miles of it to the north-east. When it has arrived within about 30 miles of the city of Hyderabad it makes an abrupt bend to the north, and joins the Godavery in 18° 48′ N. lat. and 77° 55′ E. long., about 400 miles from its source. The Manjera is not navigable in any part of its course.

The soil of Beeder is generally productive, and previous to the Mohammedan conquest the province is said to have been thickly peopled. Its numbers must since then have much fallen off, as it is not now so populous in proportion to its extent as the greater part of the British possessions in India. The Hindus exceed the Mohammedans in the proportion of three to one.

On the invasion of the Deccan, in 1295, the founder of the Bhamenee dynasty, Allah ud Deen, took up his residence at Calberga, the capital of the district of that name, in 17° 19′ N. lat. and 76° 56′ E. long. Although once the capital of a Hindu and afterwards of a Mohammedan sovereign, Calberga has since become a place of no importance. The province was brought under subjection by the Moguls in the reign of Aurungzebe, but was wrested from the successors of that prince, in 1717, by Nizam ul Mulk, the sovereign of Hyderabad, and has since continued in the occupation of the successive Nizams.

(Mills's *History of British India*; Rennell's *Memoir of a Map of Hindustan*; Ferishta's *History of the Deccan*.)

BEEDER, the capital of the province of the same name, is situated in 17° 49′ N. lat. and 77° 45′ E. long. We have not any recently published description of this place. About half a century since it was surrounded by a stone wall, six miles in circumference, with round towers at intervals. The space between this wall and the town is a level and open place, a mode of building a town which is not uncommon in India.

Beeder was founded near the ruins of an old city at the end of the sixteenth century, by Ahmed Shah Bhamenee, who gave to it the name of Ahmedabad, and transferred to it the seat of his government from Calberga. Beeder is situated 426 miles (travelling distance) from Bombay, 980 miles from Calcutta, 857 from Delhi, and 78 from Hyderabad.

(Mills's *History of British India*; Rennell's *Memoir of a Map of Hindustan*.)

BEEF-EATER, a jocular appellation, as it is now used, for the yeomen of the guard; though it seems probable that the name of *buffetiers* was formerly assigned to that portion of the yeomen of the guard only who from time to time waited at table at great solemnities, and were ranged near the buffets. (See *Antiq. Repert.* edit. 1808, vol. ii. p. 398.) The French in the same manner called their valets who attended the side-board *buffets*. Furetiere (*Dictionn. Universelle*, tom. i. in voce) having defined buffet to be a sort of cupboard for keeping vessels, china, &c.; also a sideboard furnished for the service of the table, adds, '*Buffet* se dit aussi des officiers ou valets qui servent au *buffet*.'

BEELZEBUB. [See Baal.]

BEER. [See Brewing.]

BEER-ALSTON, a small market-town in the parish of Beer-Ferris and hundred of Roborough, in the county of Devon, is situate in a most picturesque country between the rivers Tamar and Tavy, six miles S.S.W. from Tavistock, fourteen N. from Plymouth, and 212 W.S.W. from London.

According to Risdon, it was given by William the Conqueror to the French family of Alenson soon after the conquest, from whom it took its name. In the reign of Henry II., 'this honour,' says Risdon, 'as well as Beer-Ferrers, erroneously called Bere-Ferris, was held by Henry Ferrers; and Martin Ferrers, the last of that antient house, was put in special trust to defend the sea-coast against the invasion of the French in Edward III.'s time.' Towards the close of the fourteenth century it belonged to Alexander Champernowne of Dartington, and through his grand-daughter it descended to Robert Willoughby, Lord Brooke. It is now the property of the Earl of Beverley.

Beer-Alston was an antient borough by prescription, although it did not send members to parliament till the reign of Elizabeth. The electors nominally held land of the lord of the manor, at a rent of three-pence. But there really were no landholders except the lord, who created burgage tenures merely for the election. This is one of the flagrant abuses abolished by the Reform Act, Beer-Alston being by that act totally disfranchised. The election of members of parliament, as well as portreeves, town-clerks, &c., took place in the open air, under a large oak-tree. The number of inhabitants in the borough alone is estimated at 360, but the return of the population is included in that of the parish; which in 1821 amounted to 2198; but in 1831 had decreased to 1876. The living of Beer-Ferris, a rectory in the gift of the dean and chapter of Exeter, is in the archdeaconry of Totness, and diocese of Bath and Wells, and was rated in the king's books at 24*l.* 1*s.* 0½*d.* Lord Vallетort is the present patron.

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* Bekker, in the 1st chapter of the 6th book, gives εἴροψ as the Bœotian name of the bird. (See Bekker's edit. Berlin, 1829.)

The church possesses some curious monuments of the Ferrers and Champernowne families. Beer-Alston was once famous for its silver-mines, which at one time were very productive, but at present they are not considered worth working. Perhaps to this and to the disfranchisement of the borough is to be attributed the unusual decrease of the population in this parish. It is a curious fact, that the annual value of real property, as assessed in 1815, in the parish of Beer-Ferris, is, with the exception of Plymouth and Devonport, the greatest in Devonshire, amounting to 25,550*l.*

BEER-SHEBA, בְּאֵר שֶׁבַע, *the well of the oath*, is called by the Septuagint Βηρσαβεὲ, or φρέαρ ὁρκισμοῦ, and by Josephus (*Ant.* i. 12) Βηρσουβαὶ, and (vi. 3) Βαρσουβαὶ, Βηρσουβεὲ (*Ant.* viii. 13. 7), and Βηρσοβεὲ (*Vita* ed. Havercamp. p. 18, § 37). Beer-sheba is a very antient city in the south of Palestine, the existence of which can be traced from the days of the Patriarchs to the present century.

Few places have been noticed in history during so many centuries as Beer-sheba. Abraham called that place Beer-sheba, because there they sware both of them, when he made a covenant with Abimelech. And Abraham planted a grove in Beer-sheba, and called there on the name of the Lord, the everlasting God. (Gen. xxi. 14. 31.) About B.C. 1804, Abimelech went to Isaac from Gerar, and they sware one to another; and it came to pass the same day, that Isaac's servants came and told him concerning the well which they had digged, and said unto him, we have found water. And he called it Sheba: therefore the name of the city is Beer-sheba unto this day. (Gen. xxvi. 23, 33.) In this antient explanation, שֶׁבַע, *seven*, is considered as equivalent to שְׁבֻעָה, *oath*. Both words are, in Hebrew, intimately related to each other, because the number seven was of frequent occurrence in sacrifices and holy rites.

Beer-sheba was frequently the dwelling place of Abraham, Isaac, and Jacob (Gen. xxii. 19; xxviii. 10; xlvi. 1—5), of the sons of Samuel, *Joel*, and Abiah, who were judges in Beer-sheba. (1 Sam. viii. 2.) Zibiah of Beersheba was the mother of Jehoash, king of Judah. (2 Kings xii. 12; 2 Chron. xxiv. 1.) The prophet Elijah retired to Beer-sheba when he fled before Ahab and Jezebel. (Jos. *Ant.* viii. 13. 7.)

Beer-sheba belonged first to the cities of the tribe of Judah. (Joshua xv. 28; 1 Kings xix. 3.) But it appears from Joshua xix. 2, that, strictly speaking, Beer-sheba had been conceded to the Shimeonites. 'The second lot came forth to Shimeon, even to the tribe of the children of Shimeon, and their inheritance was within the inheritance of the children of Judah: and they had in their inheritance Beersheba, Sheba, Molada,' &c. (1 Chron. iv. 28.)

That Beer-sheba was situated in the south of Judah is expressly mentioned in 2 Sam. xxiv. 2—7. v. 15. Hence the name of Beer-sheba is frequently mentioned, when the whole extent of Palestine is described, in the expression from Dan to Beer-sheba, or *vice versâ*, 'From Beer-sheba even to Dan.' (1 Chron. xxi. 2; 2 Chron. xxx. 5; Judges xx. 1: 1 Sam. iii. 20; 2 Sam. iii. 10; 2 Sam. xvii. 11, xxiv. 15; 1 Kings v. 5; 2 Chron. xxx. 5.) If the kingdom of Judah only is meant, the following phrases are employed, from Geba to Beer-sheba (2 Kings xxiii. 8); from Beer-sheba to the mountain of Ephraim. (2 Chron. xix. 4.)

Under the reign of Uzziah, about the year 787 B.C., Beer-sheba was notorious for idolatry. (Amos v. 5; viii. 14.) The city was re-occupied by the Jews after their return under Nehemiah from the Babylonish exile, about 445 B.C. According to Nehemiah (xi. 27, 30), the children of Judah dwelled again from Beer-sheba unto the valley of Hinnom. About the year 300 A.D. Eusebius Pamphili describes Beer-sheba as a very large village, twenty miles south-west of Hebron, and a garrison post. In the days of St. Hieronymus, about the beginning of the fifth century A.D., we find it again described in the same terms, apparently taken from Eusebius. (Quæst. ad Gen. xvii. 30, and Onomast. h. v.) In the days of the crusades, it is thus mentioned by De Vitriaco, or de Vitry, in *Gesta Dei per Francos*, p. 1070: Beer-sheba is a town at the foot of the mountains, and near the commencement of the plain country, between the mountains and Ascalon, ten miles from Ascalon; he thus appears to assign it a different position from that of Eusebius. In a similar manner Beer-sheba is mentioned by William of Tyre. Breitenbach found, in the place of Beer-sheba, a castle called *Gallin*, other travellers a village called Gibelin; but Seetzen asserts that the town is still extant, under the name of Bir Szabea, under which name it is entered in the maps of Klöden and Grimm. (Comp. Joseph. *Antiquit.* viii. 13, 7; Zachs *Correspondenz*; Relandi *Palestina*, p. 484, 620; Hamelsveld *Bibl. Geog.* iii. 114, seq.; Winers *Biblishes Realwörterbuch*; and Gesenii *Thesaurus*, *sub voce.*)

This Beer-sheba, on the southern frontiers of Palestine, towards Idumæa, should not be confounded with a Beer-sheba (Βηρσαβεὲ, or Βηρσάβη) in Upper Galilæa, mentioned by Josephus (*Jewish War*, ii. 20, 6; iii. 3, 1, pp. 208 and 223); and in Dr. Richardson's *Travels*.

BEESHA, a genus of grasses nearly allied to Bambusa, with which it is actually combined by some naturalists, but from which it differs, according to the concurrent testimony of all authors, in the otherwise incredible circumstance of its seeds being enclosed in a fleshy pericarp.

Two species are known, both of which have the aspect of the spineless bamboos. Of these *Beesha baccifera* is found on the Chittagong mountains of India, where it is called *Pagu tulla*, growing in dry places on the sides of hills, where the upper stratum of soil is sandy. According to Roxburgh's *Flora Indica*, the circumference of the stems near the base is twelve or thirteen inches, and their height from fifty to seventy; 'beautifully erect, and without the least flexure or inequality of surface; bare of branches, except near the extremity: it perishes after yielding its fruit. It yields more or less tabasheer, of a siliceous crystallization; sometimes it is said the cavity between the joints is nearly filled with this, which the people call *Choona* or *lime*.' (*Flora Indica*, ii. 197.)

Beesha Fax is a smaller species, not above eighteen feet high; it is found in Amboyna and other parts of the Malayan Archipelago, where it is applied to many useful purposes. It is the *Arundarbor cratium* of Rumphius's *Herbarium* of Amboyna.

BEET, in Botany. [See BETA.]

BEET, a plant of the genus *Beta*, in the class *Pentandria*, and order *Digynia* of Linnæus, and, in the natural order, *Chenopodeæ* of Jussieu.

There are two distinct species of beet commonly cultivated, each containing several varieties, the one called the *Cicla*, or *Hortensis*, producing succulent leaves only, the other the *Vulgaris*, distinguished by its large fleshy root. The cicla is chiefly cultivated in gardens as a culinary vegetable, and forms one of the principal vegetables used by agricultural labourers and small occupiers of land in many parts of Germany, France, and Switzerland. A variety known by the name of Swiss *chard* produces numerous large succulent leaves, which have a very solid rib running along the middle. The leafy part being stripped off and boiled, is used as a substitute for greens and spinach, and the rib and stalk are dressed like asparagus or scorzenera; they have a pleasant sweet taste, and are more wholesome than the cabbage tribe. In a good soil the produce is very abundant, and if cultivated on a large scale in the field, this species of beet would prove a valuable addition to the plants raised for cattle. By cultivating it in rows, and frequently hoeing and stirring the intervals, it would be an excellent substitute for a fallow on good light loams.

All cattle are very fond of the leaves of this beet, which add much to the milk of cows without giving it that bad taste which is unavoidable when they are fed with turnips or cabbages, and which is chiefly owing to the greater rapidity with which the latter undergo the putrefactive fermentation. If sown in May in drills two feet wide, and thinned out to the distance of a foot from plant to plant in the rows, they will produce an abundance of leaves, which may be gathered in August and September, and will grow again rapidly, provided a bunch of the centre leaves be left on each plant. They do not sensibly exhaust the soil. These leaves, when boiled or steamed with bran, cut chaff, or refuse grain, are an excellent food for pigs, or bullocks put up to fatten.

The second species, the *Vulgaris*, or beet-root, has been long cultivated in gardens; especially that variety called the red beet, which, when boiled and sliced, makes such an excellent addition to winter salad. It is a native of the south of Europe, and hence all the varieties are tender, and destroyed by frost when in their young state. It thrives best in a rich, light, dry soil, and, from the length of its tap-root, requires a considerable depth. The white beet is an excellent root, and is preferred by many to the larger and more common intermediate varieties. It has been lately in great repute in France and Belgium for the manufacture of sugar. It is not commonly cultivated in our gardens, and we only notice it as being, with the red beet, the parent of those varieties which have been introduced into field culture.

The common field-beet for cattle, which has been long known in Germany, was introduced into England at the latter end of the last century; and its introduction is generally attributed to the late Dr. Lettsom, a physician of great reputation, and one of the Society of Friends. The German name is *mangold wurzel*, or *mangold* root, but it is commonly pronounced *mangel wurzel*, which means *scarcity* root; and by a strange translation it is called in French *racine d'abondance*, or root of *plenty*, as well as *racine de disette*, or root of *scarcity*. The name of *field-beet* is much more appropriate.

The improved variety of this beet, which grows to a very large size in good soil, has a red skin, and when cut through appears veined with red, in concentric circles. The principal part of the root rises often a foot and more above the ground, and the leaves, which are large and succulent, spring from the crown of the root. There is a limit, however, beyond which the root does not improve in quality as it increases, and the roots of a moderate size contain more saccharine and nutritive matter in the same bulk than the larger. This is particularly the case with those varieties from which sugar is extracted. The soil best adapted for the beet-root is a deep sandy loam, naturally rich, or made so by repeated manuring. The manure should be well incorporated with the soil, and if any is added for this crop, it should be well rotted and ploughed in deep. The application of liquid manure during the growth of the plant greatly increases the roots; but it is also said to make them more watery, and for the sugar beet it is not recommended. The seed, which should be chosen from the most perfect plants, is sown in May: if sown sooner, there is some danger from the frosty nights which often occur about the beginning of that month; or if the spring is warm and genial, it gets too forward, and instead of increasing in the root, it shoots up a seed-stalk, and the root becomes comparatively useless. If it is sown later than May, it never arrives at a full size before the approach of winter: hence the first or second week in May is the best time in our climate. It is found by experience that those plants of beet which grow from seed sown where they are to remain have larger roots, in general, than those which are transplanted; the seed is therefore usually drilled, or dibbled, in rows from twenty-four to thirty inches distant; the seeds are put in about an inch deep, and when they are dibbled, the holes are about four inches asunder, and two or three seeds are put in a hole. After they come up and are out of danger of frost or insects, they are thinned out, so as to leave the plants a foot asunder. Where the plants have failed, the intervals are filled up by transplanting some of those which are superfluous in other parts: in doing this it is essential that the fibres of the roots be not torn off in pulling up the plant; and if they are taken up carefully with some of the mould adhering to the roots, it will well repay the additional trouble. If the ground is well prepared, there is little fear of the plants not coming up, or of their being destroyed by the fly, as is too often the case with turnips. A sprinkling of liquid manure along the rows, about the time that the plants first appear above ground, will in general secure an abundance of them; and this may be done with much less trouble than would be imagined, by those who have never practised it. It requires only a water-cart, with a large cask and two leathern hose, kept at a proper distance from each other by a stick between them, so that they may pour the liquid manure over two rows at once. If the field be not above a mile from the tank, a man and horse will water two acres in a day, and if the distance is half a mile, four acres; the expense will be amply repaid in the crop.*

On a very large scale this may not be so practicable; but wherever a field of beet is near the home-stall, it should never be omitted; the evident advantage of it will soon remove any objection arising from trouble or expense. When the plants are three inches above ground, they may be thinned out a foot apart in the rows; the intervals between the rows may be stirred with the plough, grubber, or horse-hoe, and the intervals from plant to plant in the row with the hand-hoe. The ground cannot be kept too fine and open, provided the soil be not extremely porous, and the weather very dry; in that case it must not be stirred so much, for fear of the moisture evaporating too much. It is a common practice to throw the earth from the rows against the roots; but the most experienced cultivators do not approve of the method: on the contrary, they recommend drawing the earth from the plants, or at least laying the whole ground level. Where the soil is naturally rich and deep, the drills may be made on the level ground; but if the soil is shallow, or the subsoil of a barren nature, it is best to raise small ridges, as is done for turnips on the Northumberland plan, and bury the dung under them, by which means the roots have more room to strike downwards. As soon as the outer leaves begin to droop, they may be gathered and given to cattle, but a tuft should be left in the centre to carry on the vegetation, or else the roots will not increase. This practice of gathering the leaves is strongly recommended by some, and they assert that the root does not suffer in the least, although the leaves are reproduced: but here we would give this caution, founded on experience and observation. The drooping leaves, if not gathered, will decay and fall off; they have performed their office, and therefore to gather them before they wither is a real economy: but to strip off fresh and growing leaves must injure the plant, and the juices required to replace them are so much taken from the growth of the roots. When fodder is very scarce this may be a sacrifice worth making, but if the object is to reserve the roots for winter food, the leaves should remain on the plant as long as they look fresh and growing, until near the time of taking up the whole crop: the top may then be cut off an inch above the crown of the root, and will be excellent food for the cows and pigs.

The roots are generally taken up and stored for winter, some time before there is any danger of considerable frost; the top having been removed, and the tap root cut off, the mould which may adhere to the fibres is scraped off with the back of the knife. The roots are then either stacked in a barn or root-house, with alternate layers of straw, and the sides and top protected from the frost by straw placed all round, in which way they will keep well and fresh till spring: or they are placed in trenches two feet deep and six feet wide, with a layer of straw at the bottom and against the sides; they are heaped up in these trenches to the height of three feet above the ground, forming a ridge at top, and then covered all over with straw, over which the earth taken out of the trench is spread, and made smooth, sloping like the roof of a house. A small trench is dug all round this heap, with a proper outlet to prevent any water from soaking in; the heaps are made of any length, according to the quantity of roots to be stored, and the two ends are secured with straw, and covered with earth like the sides. When it is required to take out the roots for use, an opening is made at the end, a sufficient quantity is taken out, and the end is secured again with straw and earth as before. When the roots have been put in dry, and some time has been allowed for a slight fermentation, and the steam produced has been allowed to escape before the heap was finally covered in, they will come out quite fresh and juicy till late in spring; but if the proper precautions are neglected, they will often rot or become musty, and then the cattle will not readily eat them. There are few crops so valuable for winter food for cattle as the beet: Swedish turnips, or ruta baga, exceed them in the quantity of nourishment, weight for weight, but on good light soils the produce of the beet per acre is much greater. On old pasture ground trenched up enormous crops of mangel wurzel have been raised. When the

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* If the water-cart contains 100 gallons, it will water one-third of an acre in rows at three feet distance; the horse will go over one mile and a half in an ordinarily shaped field to water an acre, to which must be added twice the distance from the tank, taken three times. This makes in all 1½ + 6, or 7½ miles for each acre, when the distance is one mile.

Regent's Park was forming, a part which had been trenched was sown very thick with mangel wurzel seed, and such was the produce, that it was sold by auction, in lots, to the cow-keepers in the neighbourhood, at the rate of 80*l.* per acre.

It is said that the cows fed entirely on beet become too fat, and give less milk; but this would be no objection with the cow-keepers who unite the fattening of their cows with the milking, and like to have them ready for the butcher as soon as they are nearly dry. For bullocks they are excellent; for horses Swedish turnips are preferable. The proportional value of hay, potatoes, Swedish turnips, and beet in feeding cattle, according to Einhof, whose statements Thaer has found to agree with his experiments, is as follows:—18 tons of mangel wurzel are equal to 15 tons of ruta baga, or 7½ tons of potatoes, or 3¾ tons of good meadow hay, each quantity containing the same nourishment: but the roots may be grown upon less than an acre, whereas it will take two or three acres of good meadow-land to produce the equivalent quantity of hay; and of all these root crops the least exhausting for the land is the beet. The white beet has been chiefly cultivated for the extraction of sugar from its juice. It is smaller than the mangel wurzel, and more compact, and appears in its texture to be more like the Swedish turnip. We have given it to cattle, and are satisfied with the result; but we have not made sufficiently accurate experiments to decide which sort is the most advantageous. It will probably be found that the nature of the soil will make the scale turn in favour of the one or the other; but for the manufacture of sugar, the smaller beet, of which the roots weigh only one or two pounds, are preferred by Chaptal, who, besides being a celebrated chemist, was also a practical agriculturist, and a manufacturer of sugar from beet-root.

This manufacture sprung up in France in consequence of Bonaparte's scheme for destroying the colonial prosperity of Great Britain by excluding British colonial produce. It having been found that from the juice of the beet-root a crystallizable sugar could be obtained, he encouraged the establishment of the manufacture by every advantage which monopoly and premiums could give it. Colonial sugar was at the enormous price of four and five francs a pound, and the use of it was become so habitual, that no Frenchman could do without it. Several large manufactories of sugar from beet-root were established, some of which only served as pretexts for selling smuggled colonial sugar as the produce of their own works. Count Chaptal, however, established one on his own farm, raising the beet-root, as well as extracting the sugar. We here give a brief account of the process, taken chiefly from his own publications, especially the work entitled *La Chimie appliquée à l'Agriculture*, 2 vols. 8vo. Paris, 1829. The first operation is to clean the roots: some effect this by washing, but Chaptal prefers scraping and paring them with a knife, although by this means one-sixth part of the root is wasted, as the scrapings mixed with earth cannot be safely given to cattle, and even the pigs eat but little of it; but it adds to the manure, and is therefore not altogether lost. Six tons of beet-root are thus reduced to five, which are next to be rasped and reduced to a pulp. This is done by a machine consisting of a cylinder of tinned iron, two feet in diameter, and eighteen inches in the axis, on which it is turned by machinery. On the circumference of this cylinder are fixed, by means of screws, ninety narrow plates of iron, rising three-fourths of an inch from the surface and parallel to the axis, at equal distances all round; the outer or projecting edges of these plates are cut into teeth like a saw; a slanting box is fixed to the frame on which the axis of the cylinder turns, so that the roots may be pressed against these plates. The cylinder is made to revolve rapidly, and the roots are thus scraped, the pulp falling into a vessel, lined with lead, placed below. When two such cylinders are made to revolve 400 times in a minute by a sufficient power, whether water, wind, or horses, two and a half tons of roots are ground down in two hours. It is necessary that this operation should proceed rapidly, or else the pulp acquires a dark colour, and an incipient fermentation takes place, which greatly injures the future results. As the pulp is ground it is put into strong canvass bags, and placed under a powerful press to squeeze out the juice. The residue is stirred, and subjected to a second and third pressure, if necessary, till every particle of juice is extracted. As the liquor is pressed out, it runs into a copper, until it is two-thirds filled. The strength is ascertained by an instrument similar to the saccharometer used by brewers, called the *pèse-liqueur* of Beaumé *, which shows the specific gravity of the liquid. The fire is now lighted, and by the time the copper is full the heat should be raised to 178° of Fahrenheit's thermometer (65° of Réaumur), but no higher.

In the mean time a mixture of lime and water has been prepared by gradually pouring as much water upon 10lb. of quick lime as will make the mixture of the consistency of cream. This is poured into the copper when the heat is steadily at 178°, and is well mixed with the juice by stirring it. The heat is then increased till the mixture boils, when a thick and glutinous scum rises to the surface. As soon as clear bubbles rise through this scum, the fire is suddenly put out by water poured on it or by a proper damper. The scum hardens as it cools, and the sediment being deposited the liquor becomes clear and of a light straw colour. The scum is then carefully taken off with a skimmer having holes in it, and is put into a vessel till such time as the liquor remaining in it can be pressed out. A cock is now opened about five inches above the bottom of the boiler, and all the clear liquor is drawn off. Another cock lower down lets out the remainder until it begins to appear cloudy; what still remains is afterwards boiled again with what is extracted by pressure from the scum. The clear liquor is now subjected to evaporation in another boiler which is wide and shallow. The bottom is but slightly covered with the juice at first, and it boils rapidly. As the water evaporates, fresh juice is let in. When a certain degree of inspissation or thickening has taken place, so as to show five or six degrees of strength on the *pèse-liqueur*, animal charcoal is gradually added till the liquor arrives at 20°. One hundred weight of charcoal is required for the juice of 2½ tons of beet, which is now reduced to about 400 gallons. The evaporation by boiling continues till the saccharometer marks 25° and a regular syrup is obtained. This is now strained through a linen bag, and the liquor is kept flowing by means of steam or hot air, and assisted by pressure. In two or three hours all the clear syrup will have run through.

There are many nice circumstances to be attended to, which can only be learned by experience, and an outline of the process is all that we undertake to give.

The syrup thus prepared is again boiled and skimmed until it is sufficiently concentrated, which is known in the following manner. The skimmer is dipped into the syrup and drawn out; some of the thick syrup which adheres to it is taken between the thumb and fore-finger and held there till the heat is reduced to that of the skin; the finger and thumb are separated, and if the syrup is of a proper strength, a thread will be drawn out, which snaps and has the transparency of horn or rather barley-sugar: this is called the *proof*. The fire is then put out and the syrup is carried to the cooler, which is a vessel capable of containing all the syrup produced by four operations or boilings. Here the sugar is to crystallize: as soon as this commences the whole is well mixed and stirred, and before it becomes too stiff, earthen moulds, of the well-known sugar-loaf shape, and of the size called *great bastards*, are filled with the crystallizing mass, of which a little at a time is poured into each. When they are full, they are carried to the coolest place on the premises. As the crystallization goes on, the crust formed on the top is repeatedly broken, and the whole is stirred till the crystals are collected in the centre; it is then allowed to go on without further disturbance. In three days it is so far advanced, that the pegs which were put into the holes at the point of the moulds may be taken out and the molasses allowed to run out. In a week this is mostly run off. White syrup is now poured on the top of the moulds, which filters through the mass and carries part of the colouring matter with it. The process that follows is exactly that in common use in refining West India sugars.

Although most of the operations are nearly the same as those by which the juice of the sugar-cane is prepared for use, much greater skill and nicety are required in rendering the juice of the beet-root crystallizable on account of its greater rawness, and the smaller quantity of sugar that it contains. But when this sugar is refined, it is impossible for the most experienced judge to distinguish it from the other, either by the taste or appearance; and from this arose the facility with which smuggled colonial sugar was sold in France, under the name of sugar from beet-root. Five tons of clean roots produce about 4½ cwt. of coarse sugar, which give about 160 lbs. of double-refined sugar, and 60 lbs. of inferior lump-sugar. The rest is molasses, from which a good spirit is distilled. The dry residue of the roots, after expressing the juice, consists chiefly of fibre and mucilage, and amounts to about one-fourth of the weight of the clean roots used. It contains all the nutritive part of the root, with the exception of 4½ per cent. of sugar, which has been extracted from the juice, the rest being water. Two pounds of this dry residue, and half a pound of good hay, are considered as sufficient food for a moderate-sized sheep for a day, and will keep it in good condition; and cattle in proportion.

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* The *pèse-liqueur* of Beaumé here referred to is an hydrometer, of which 0° corresponds to 1·000, the specific gravity of pure water at 55° of Fahrenheit; and 25° to about 1·215.

As the expense of this manufacture greatly exceeds the value of the sugar produced, according to the price of colonial sugar, it is only by the artificial encouragement of a monopoly and premiums that it can ever be carried on to advantage. The process is one of mere curiosity as long as sugar from the sugar-cane can be obtained, and the import duties laid upon it are not so excessive as to amount to a prohibition; and in this case it is almost impossible to prevent its clandestine introduction.

By allowing the juice of the beet-root to undergo the vinous fermentation and by distilling it, a more profitable result will be obtained in a very good spirit. A kind of beer may also be made of it, which is said to be pleasant in warm weather and wholesome.

Another mode of making sugar from beet-root, practised in some parts of Germany, is as follows, and is said to make better sugar than the other process. The roots having been washed are sliced lengthways, strung on packthread and hung up to dry. The object of this is to let the watery juice evaporate, and the sweet juice, being concentrated, is taken up by macerating the dry slices in water. It is managed so that all the juice shall be extracted by a very small quantity of water, which saves much of the trouble of evaporation. Professor Lampadius obtained from 110 lbs. of roots 4 lbs. of well-grained white powder-sugar, and the residuum afforded 7 pints of spirit. Achard says that about a ton of roots produced 100 lbs. of raw sugar, which gave 55 lbs. of refined sugar, and 25 lbs. of treacle. This result is not very different from that of Chaptal.

BEETHOVEN, LUDWIG VON, one of the three great German composers who may be said to have flourished in our time, was born on the 17th of December, 1770, at Bonn. His father and grandfather were both musicians by profession; the former occupied the situation of principal vocal tenor, and the latter that of first base singer, and subsequently *kapellmeister*, in the chapel of the elector of Cologne. In the *Dictionnaire des Musiciens* it is said, that he was the reputed son of Frederick William II. of Prussia, but there seems to have been no ground whatever for a rumour which, in all probability, originated in court scandal. Beethoven's father was so much addicted to intemperance that he was often disqualified from performing his duties; hence he neglected the education of his son, who, however, by the assistance of friends, was enabled to gain some knowledge of Latin, of French, of arithmetic, &c., as taught in the schools of Germany.

From the earliest age Beethoven evinced a disposition for music; or, in other words, he learnt the language of music and his mother-tongue both at the same time: and as modulated sounds seldom fail to make a deep impression on a young fervid mind, when they are almost constantly presented to it, as was the case in the present instance, he soon acquired, and as speedily manifested, a taste for the art of which they are the foundation. His father began to instruct him when he was only in his fifth year, but soon delivered him over to M. Von der Eden, esteemed the best pianist in Bonn, who dying shortly after, the youthful pupil was transferred to M. Neefe, his successor, the Archduke Maximilian of Austria defraying the expense of his tuition. This excellent master initiated his pupil in the works of Sebastian Bach, particularly in those extremely laboured studies entitled 'Le Clavecin bien tempéré;' or the Forty-eight Preludes and Fugues in every key. At the age of thirteen he published at Mannheim and at Spires, in his own name, Variations on a March, Sonatas, and Songs. But at this time his genius displayed itself more decidedly in musical improvisation. His extempore fantasias are mentioned by Gerber in his Lexicon ('Tonkunstler-Lexicon'), as having excited the admiration of the most accomplished musicians of the time.

The elector of Cologne now sent his protégé, in the character of court organist (in which office he had succeeded Neefe), to Vienna, to study under Joseph Haydn; but the great composer, being then on the point of setting out for England in furtherance of his engagement with Mr. Salomon, placed his intended pupil in the hands of the eminent theorist, Albrechtsberger, who first gave him methodical instructions in counterpoint. After having completed his time with that master, he returned to Bonn; but the capital of the Austrian empire had now more charms for him than his native city. His patron, too, died, and war raged in its worst form in the north of Germany; Beethoven, therefore, left for ever the place of his birth, and settled in Vienna, which city and the adjoining country he never afterwards quitted.

About this time (1791?), says the Chevalier von Seyfried, Beethoven most successfully tried his strength in the quartet style, 'a noble style, reformed, or, more properly speaking, created by Haydn, enriched by the universal genius of Mozart with greater depth and gravity, though not at the expense of grace, and carried by Beethoven to a degree of superior power that few will attempt to attain, and perhaps none will ever surpass.' Happily for him he was at that time on terms of intimate friendship with three artists in the service of Prince Rasumowski; and whenever he had finished a work, he communicated to them his intentions in regard to its character and expression. Hence it became a saying in Vienna, 'Those who would well understand the chamber-music of Beethoven must hear it executed by Schuppanzigh, Weiss, and Linke.'

He now was strongly pressed to compose an opera, and M. Sonnleithner undertook to arrange the opera of *Leonore*, from a French piece named *l'Amour conjugal*. Beethoven then went to reside in the very theatre for which he was writing, and laboured at his work with ardour and satisfaction. This opera, better known under the title of *Fidelio*, was not received with much applause; with the exception of three, the performers were not equal to the tasks assigned them. Moreover, the war and progress of the French armies absorbed the attention of nearly every inhabitant of Vienna. The next year the managers of the Karnthnerthor Theatre gave *Fidelio* for their benefit. The work then took the form which it now bears; it was reduced to two acts, and preceded by an imposing overture in E major. The composer also added the short march, the air of the jailer, and the finale of the first act, cutting out a trio in B flat, and a duet for a soprano, with violin and violoncello obligati accompaniments, in C, nine-eight time, neither of which are to be found in the score.

In 1809 Beethoven determined to accept the place of kapellmeister to the king of Westphalia, Jerome Buonaparte, which was offered to him with many advantageous conditions. It was then that three lovers and patrons of the arts, the archduke Rodolph, and the princes Lobkowitz and Kinsky, came forward, and, in terms the most flattering, executed a deed by which an income of 4000 florins (about 400*l.*) was secured to the great composer, till he should obtain some appointment of equal value, the only condition of which was, that it should be expended in the Austrian dominions.

It is to be feared that untoward events frustrated, in a considerable degree, the good intentions of Beethoven's patrons. Prince Lobkowitz was soon involved in such utter ruin that his palace in Vienna was converted into an hotel. Prince Kinsky fell in the French war, and the archduke remained his only protector. He now expressed a strong desire to travel, and especially wished to see England. He had been invited to this metropolis by the Philharmonic Society of London, who proposed to him liberal terms, and he made preparations for the journey; but when the moment for decision arrived, he could not summon up sufficient courage for, what appeared to him to be, so vast an undertaking. He was suffering from an infirmity severe to all afflicted by it, but doubly so to a musician—deafness. This calamity came on gradually, but from the first defied all remedies and every effort of skill, till at length the sense became so wholly extinct that he could only communicate with others by writing. The consequences of so severe a deprivation were, as his friend Seyfried feelingly but candidly remarks, 'a habit of gloomy, anxious distrust, and a violent desire of solitude, the usual precursors of hypochondria. To read, to stroll into the country, were his most agreeable occupations; and a small, very select circle of dear friends formed his only social enjoyment.'

By slow degrees, maladies, arising probably from a long-continued state of mental irritation, attacked a frame which nature had made healthy and robust, and rendered recourse to medical aid absolutely necessary. Three of the chief Vienna physicians attended him, and neglected nothing that could alleviate the sufferings of their patient. But the hope of any cure soon vanished: symptoms of dropsy appeared, and became more and more decisive in character. He underwent the operation of tapping, which mitigated the pain he endured. During the process he very characteristically exclaimed, 'Better water from my body than from my pen.' Six days before his death he said to his friends M. Schindler, an Aulic counsellor, and M. Breuning, '*Plaudite, amici, comœdia finita est.*' From about that time to the moment of his decease he was in a state of constant delirium; and in the evening of the 26th of March, 1827, he breathed his last. M. Schindler, in a letter to Mr. Moscheles, says, 'The funeral ceremonies were such as are due to the remains of a great man. It is calculated that nearly 30,000 people were collected on the glacis and in the street through which the procession was to pass. The scene is not to be described in words; but if you remember the immense concourse of people in the Prater during the Congress of Vienna in 1814, you may form some idea of it. . . . . . Eight *Maîtres-de-Chapelle* were pall-bearers; and in the whole there were thirty-six torch bearers, among whom were the poets Grillpartzer and Castelli, as also all the first artists in Vienna.' At the end of this letter, the writer mentions an extraordinary proof of the avidity with which the German phrenologists seize every opportunity of pursuing their investigations. 'Yesterday,' he says, 'the grave-digger came to announce to us that an offer of a thousand florins, convention-money (about 100*l.* English), had been made to him by letter, if he would deposit the head of Beethoven in a place fixed on.'

'In taking an inventory of M. Beethoven's property,' the before-named gentleman adds, 'there were found, in a half-mouldered chest, seven Austrian bank bills, value about 1000*l.* in British money, and about 100 florins in paper money. The hundred pounds which the Philharmonic Society of London had sent him were found untouched.' This society, hearing that one to whom music owed such deep obligations was suffering from sickness and straitened circumstances, with a most laudable feeling, immediately transmitted that sum for his immediate use, and were prepared to show a further proof of their gratitude, had it been necessary.

Beethoven died unmarried; and he was never known to form any attachment of a tender kind. His portraits are faithful representations. He was of the middle size, stout, and his form altogether indicated strength. Notwithstanding the strange kind of life he led, his only illness was that of which he died.

In reference to his projected travels, it has been observed by an anonymous writer in the *Harmonicon* (vol. i. 156), that it may be doubted whether his presence would have added, either here or elsewhere, to his celebrity. His extreme reserve towards strangers prevented his displaying those excellent qualities which, under a forbidding exterior, he was known to possess; and such were the contrasts in his character, that occasionally his bluntness of remark, and his total want of reserve in offering his opinion of others, made him appear to be quite forgetful of the prescribed rules of society. But, continues the writer in the work mentioned, notwithstanding these foibles, which too often accompany genius, his character for integrity ranked deservedly high: his strong feeling of truth and justice produced a rectitude in his moral conduct which ensured him the esteem of every honourable man. Though his early education was rather neglected, yet he made up for the deficiency by subsequent application; and those who knew him well state, that his knowledge of German literature was very respectable, and that he was a tolerable proficient in Italian, though of French he knew very little: indeed, he had strong prejudices against that nation. Whenever he could be induced to throw off the reserve arising, most likely, from his infirmity, his conversation became 'extremely animated, full of interesting anecdote, and replete with original remarks on men and manners.'

But after his decease it was found that he was conscious of his own weaknesses, and in his will had apologised for them. This curious document, so interesting to the admirers of Beethoven, to the lovers of art, and to the moral philosopher, as developing the feelings of an illustrious composer, and throwing a light on his personal character, is dated Heiligenstadt, Oct. 6, 1802, and addressed to his brother Carl, and his nephew Ludwig Beethoven.

Beethoven's published works reach opera 120, at least; they embrace every class and are in all styles. His vocal music is full of beautiful new melody, and equally distinguished by strong feeling and a just expression of the words. His oratorio, *The Mount of Olives*, his opera, *Fidelio*, and his two masses, bear testimony to this; though, in our opinion, his numerous songs, very little known in England, and his two cantatas, 'Adelaida,' and 'Ah! perfido, spergiuro,' with which all real lovers of music are acquainted, display taste of a more refined kind than any of his other vocal works can boast. Most of his pianoforte music is admirable, and possesses every quality that vast genius could endow it with; while some is crude, wantonly difficult, and betrays a wayward fancy. His quintets and quartets, or what may be termed his chamber music, are elaborately written, and so original,—they speak a language so uncommon,—that, on a first, and even second hearing, many good and impartial critics have confessed themselves unable to form a decisive opinion of their merits. On further acquaintance, beauties of the rarest kind are unfolded, and the appetite for them increases in proportion as they are better known. We are, it must be understood, alluding to the best of the class; the composer was not successful in every production of the sort, though his failures were comparatively few. But the grandeur of Beethoven's conceptions, and his marvellous skill in development, are most manifest in his orchestral works, in his overtures, and more especially in his symphonies. This is the field in which all his faculties are called into action; in which the wonders of his imagination are displayed, and every resource of his art is made contributory. And the power which he here exhibits is the more remarkable, as the ground seemed to be so entirely occupied by Haydn and Mozart, that no room appeared to be left for a third.

Five years after the death of Beethoven, his friend the Chevalier Ignaz von Seyfried published, in German, his posthumous didactic work, under the title of *Beethoven's Studies in Thorough-Bass, Counterpoint, and the Theory of Composition, collected from his autograph MSS., &c.* This work, though deficient in method and desultory, contains matter of much interest and importance to the musician, and, as the record of his own experiences, is not only valuable but curious. Its utility, however, will be felt chiefly by professors, especially composers, who, if they make a right use of it, may profit largely by the practical remarks, illustrated by examples, embodied with the text, in which it abounds. M. Seyfried has added to the work a biographical sketch of the author, and that extraordinary will to which we have above alluded.

BEETLE. This term has frequently been used as the name common to the species of the family *Scarabæidæ*; but it is more commonly and properly used to designate those insects which are covered by a strong horny substance, the abdominal part of the body being protected by two sheaths under which the wings are folded. Hence the term is synonymous with COLEOPTERA.

BE'FORT, BELFORT, or as it is written by Expilly, **BEDFORT,** a town in France, formerly capital of the district of Sundtgau, now capital of an arrondissement in the department of Haut Rhin or Upper Rhine. It is situated amid the Vosges, and on the bank of a little stream, the Savoureuse, which runs into the Doubs. It is in 47° 39 N. lat., and 6° 50′ E. long., 248 miles E.S.E. of Paris.

An old fortress of the feudal ages, which from its strong position had the name of Bel-fort, gave to this town both its origin and its designation. It was at an early period under counts of its own, and afterwards passed under the dominion of the house of Austria. By the treaty of Westphalia in 1648, it was ceded by Austria to France; and its important situation, in a pass from Alsace to Franche Comté, induced Louis XIV. to strengthen it with new military works. The task was committed to the skill and science of Vauban, who was led by the nature of the ground to use a new system of fortification. The ground enclosed by the new fortifications was laid out in regular streets, and occupied by well-built houses, forming a *new town* far superior in appearance and symmetry to the *old town*. The new town occupies the higher ground, the old town occupies the lower. The antient castle, which Vauban repaired, is on a steep rock, and is remarkable for the great height of its walls. Previous to the revolution there was a collegiate church at Béfort.

The town is well situated for trade, being the centre from which several roads branch out; the neighbouring country furnishes wood and iron; and between the town and the Vosges is a vast bed of peat, which might serve for fuel. Iron-wire, wax-candles, leather, and paper are the chief manufactures; and the *Dictionnaire Universel de la France*, Paris, 1804, speaks of a charitable institution for orphan girls in which cotton-yarn was spun, also of manufactories of printed cottons. The population of the town in 1832 was 4537; that of the whole commune amounted to 5753.

The principal objects worthy of notice are the town-house, the church, the military hospital, and the barracks. There are a library, a high school, and a society of agriculture.

The arrondissement of Béfort is very mountainous, being entirely occupied by the branches of the Vosges or the Jura. It comprehends 341 square miles, or 218,240 acres, and is subdivided into nine cantons and 191 communes. The population of the arrondissement in 1832, was 116,156.

(Expilly; Malte-Brun; *Dictionnaire Universel de la France*; Dupin, *Forces productives de la France.*)

BEG, also pronounced **BEY**, is a Turkish word which signifies 'prince, lord, or chief,' and in the Osman empire is rather vaguely used as a title of governors and other high officers of the state. It is also frequently subjoined to proper names, to distinguish persons of high rank generally.

BEGGAR. [See MENDICANT and MENDICITY.]

BEGHARMI, called by Brown **D'AR BAGHERMI**, is a country in Africa, extending southwards, probably to 10° N. lat.: its northern boundary reaches nearly to the Lake Tchad, perhaps to 12° 30′ N. lat. We know only the western boundary with any degree of certainty, and this runs (about 18° E. long.) at a short distance from the eastern bank of the river Shary, which empties itself into the Tchad from the south-east. On the east it seems to extend to the nearly unknown country of Waday, which separates Begharmi from Dar-Fur. Some small kingdoms, which extend along the river Shary, separate on the west Begharmi from Bornou.

This country, like its neighbour Bornou, lies between the unknown region of central Africa and the Great Desert, the Sahara, which latter may be considered as beginning on the northern shores of the Lake Tchad. From the swampy southern shores of the Tchad the country rises imperceptibly for a considerable distance, and then the surface begins to swell into hills, which by degrees attain the height of mountains. The hilly and mountainous portion of it belongs to Begharmi. The greatest part of this country is covered with thick forests, chiefly inhabited by the ferocious animals common in this part of Africa. It is also traversed by a great number of rivers and water-courses, and contains numerous lakes. The river Shary, which probably has its source in the mountains of Begharmi, enters the plain as a considerable stream, being at Kussery about 1200 feet wide.

As this country has never been visited by Europeans, we are unacquainted with its natural wealth. We only know that its horses are of excellent breed, perhaps among the best in the world.

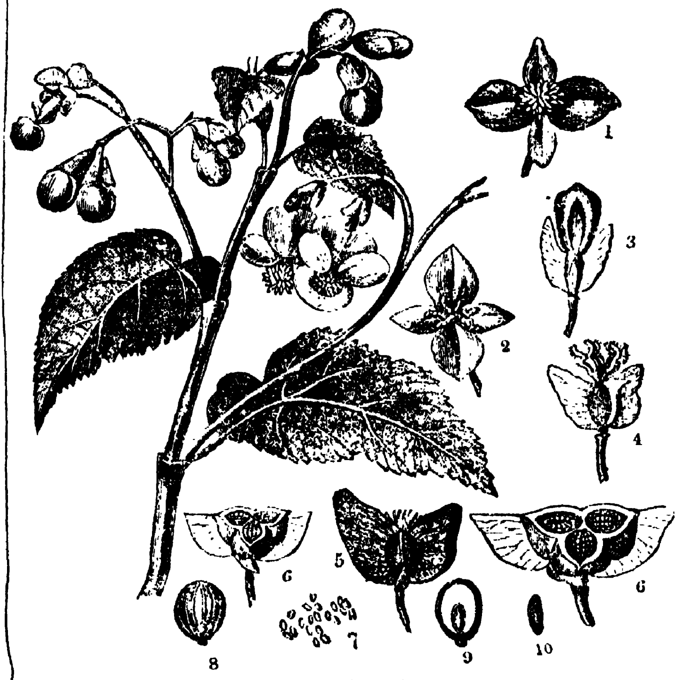
We know little more about its inhabitants, who seem to be numerous and warlike. They frequently undertake predatory incursions into the neighbouring countries, where they often appear in considerable numbers. Besides, they seem to have made considerable progress in some of the arts, at least in those of war. In Denham's 'Journey' there is a picture of a Begharmi horseman, which certainly may be adduced in proof of this assertion. It is not decided whether the inhabitants of Begharmi are negroes, or whether they belong to the Galla tribes which have occupied a considerable part of Abyssinia. It would appear, however, that they have not embraced the Islam, but are still idolaters.

The flat country extending between Begharmi and the Lake Tchad is the abode of a tribe of wandering Arabs, called the Shouaas, who have numerous flocks of cattle and sheep.

The few notices respecting this country we owe to Major Denham, who collected them during his residence at Bornou.

BEGLERBEG, a compound word, which properly signifies 'chief of chiefs,' was till very recently in the Osman empire the title of the governor-generals of the provinces. They stood next in rank to the vizier, and had under their jurisdiction many *sanjaks*, or districts, with their begs, agas, &c. One of their external distinctions was that the sultan of Constantinople always bestowed on them three ensigns, named in Turkish *tugh*, which consisted of staves trimmed with the tail of a horse: inferior officers of the crown were honoured by only one or two of these insignia. About the middle of the seventeenth century, the Turkish empire comprised twenty-two *beglerbeglics*, or provinces governed by beglerbegs, who derived their income from the places under their government, viz., seventeen in Asia: Anatolia, Caramania, Diarbekir, Damascus, Siwas, Erzerum, Van, Childir, Shehrezur, Aleppo, Marash, Cyprus, Tarabolos, Trebizond, Kars, Mosul and Rika; and five in Europe Rumili, Gallipoli (the beglerbeglic of the seas), Budun or Buda, Temeswar, and Bosna. Six other beglerbegs received their salary out of the grand signior's treasury: they were those of Cairo, Bagdad, Yemen, Habesh, Basra, and Lahsa. (See Paul Rycaut, *State of the Ottoman Empire*, London, 1668, fol. pp. 51-57.)

BEGONIA'CEÆ, a natural order of Endogens, consisting of a single genus, composed of species found exclusively in the dampest parts of the tropics in both the New and Old World, particularly in Asia and America. They have perfectly unisexual flowers, with a superior calyx, generally coloured pink, consisting, in the sterile flowers, of from two to four pieces, and in the fertile flowers of from five to eight. The stamens are numerous; the style simple; the stigmas three, often forked, and having a wavy or twisted appearance. These latter originate from a three-cornered, three-celled ovary, containing a multitude of little seeds, which changes to a thin-sided capsule with three extremely unequal wings. The leaves are always more or less unequal-sided, and have highly-developed membranous stipules at their base.



[Begoniaceæ.]

1, a sterile flower; 2, a fertile one; 3, the same in bud; 4, the half-grown ovary and stigmas; 5, fruit; 6, the same cut through horizontally; 7, seeds the natural size; 8, one seed magnified; 9, the same cut through to show the embryo in its natural position in the albumen; 10, an embryo separate.

It is very difficult to say with what other natural order this has most affinity. By Link it has been stationed near *Umbelliferæ*, a most unintelligible association. Jussieu, attracted by its highly developed stipules, and apparently apetalous flowers, together with the acid flavour which is so prevalent in the order, suspected its near alliance with *Polygoneæ*, while Lindley, with a greater degree of probability, now makes it constitute an alliance of his Epigynous Cohort of Exogens with polypetalous flowers, stationing it in the vicinity of the Gourd tribe.

All the species of the only genus, Begonia, of which the order consists, have fleshy leaves, often richly-coloured with crimson, succulent stems, and neat-looking pink flowers growing in few-flowered panicles. They are deservedly favourites with the collectors of tropical plants in consequence of the facility with which they may be kept in a state of almost constant flowering; yet we are not aware that they have ever received in this country the consideration they deserve, although the readiness with which they lend themselves to the cultivator's art renders them peculiarly suited to his attention. Heat and moisture in a high degree, with decayed vegetable matter to grow in, such as old tan, are all that they require: treated thus in the imperial gardens at Schönbrunn, near Vienna, they form one of the most interesting objects in that splendid establishment, occupying almost exclusively a house specially allotted for their cultivation, and not yielding in attraction to the tropical forest, fern-houses, and palm-houses in their vicinity, with which the visiter naturally compares them. About fifty species are at present described, the principal part of which may be procured in a living state in the gardens of Europe.

BEGUINS, in ecclesiastical history, certain tertiaries or half-monks, who followed the *third* rule of St. Francis. They were called in Italy, Bizochi and Bocasoti; in France, Beguins; and in Germany, Beguards or Beghards: and are very frequently mentioned in the ecclesiastical history of the middle age. The accounts, however, which both antient and modern writers generally give of these famous names are so uncertain and so different from each other, that the history of the Beghards and Beguins is involved in greater perplexity than any other part of the ecclesiastical history of that period. Mosheim is minute upon the true origin of these denominations, both of which he considers to have been derived from the German *beggen* or *beggeren* (now written *begehren*), to seek with importunity, by joining which to the syllable *hard*, which is the termination of many German words, we have the word *beggehard*, applicable to a person who asks any thing with great ardour, and from which the English word beggar is manifestly derived. These observations, on the origin and signification of the words in question, serve as a clue to the difficulties in which the history of the Beghards and Beguins has been involved; and, as Mosheim justly observes, will enable the reader to account for the prodigious multitudes of Beghards and Beguins which sprung up in Europe in the thirteenth century; and will show him how it happened that these denominations were given to above thirty sects or orders, which differed widely from each other in their opinions, their discipline, and manner of living. The Bizochi or Beguins, if we except their sordid habit and certain observances or maxims, which they followed in consequence of the injunctions of St. Francis, lived after the manner of other men, and were therefore considered in no other light than as seculars and laymen. (See the *Acta Inquisit. Tholosanæ*, published by Limborch, pp. 307, 329, 382, 389, &c. and Jordan's *Chronicon*, published by Muratori, *Antiquit. Ital. Medii Ævi*, tom. iv., p. 1020.)

We must not, however, says Mosheim, confound these Beguins and Beguines, who derive their origin from an austere branch of the Franciscan order, with the German and Belgic Beguines, who crept out of their obscurity in the thirteenth century, and multiplied prodigiously in a very short time. Their origin was of earlier date than this century, but it was only now that they acquired a name, and made a noise in the world. Their primitive establishment was undoubtedly the effect of virtuous dispositions and upright intentions. A certain number of pious women, both virgins and widows, in order to maintain their integrity, and preserve their principles from the contagion of a corrupt age, formed themselves into societies, each of which had a fixed place of residence, and was under the inspection and government of a female head. Here they divided their time between exercises of devotion and works of industry, reserving to themselves the liberty of entering into the state of matrimony, and quitting the convent whenever they thought proper. And as all those among the female sex, who made extraordinary professions of piety and devotion, were distinguished by the title of *Beguines*, i. e. persons who were uncommonly assiduous in prayer, that title was given to the women of whom we are now speaking. The first society of this kind that we read of, was formed at Nivelle in Brabant, in the year 1226, or as other historians say, in 1207; and was followed by so many institutions of a like nature in France, Germany, Holland, and Flanders, that towards the middle of the thirteenth century, there was scarcely a city of any note that had not its *beguinage*, or vineyard, as it was sometimes called in conformity to the style of the *Song of Songs*. All these female societies were not governed by the same laws: but in the greatest part of them, the hours that were not devoted to prayer, meditation, or other religious exercises, were employed in weaving, embroidering, and other manual labours of various kinds. The poor, sick, and disabled Beguines were supported by the pious liberality of such opulent persons as were friends to the order.

Mosheim, in a note, says, 'in the last,' meaning the seventeenth century, 'there was a great debate carried on in the Netherlands, concerning the origin of the Beghards and Beguines: the latter, in the course of the controversy, producing the most authentic and unexceptionable records and diplomas, from which it appeared that in the eleventh and twelfth centuries there had been several societies of Beguines established in Holland and Flanders.' It is true, he adds, they had no more than three of these authentic acts to offer as a proof of their antiquity; the firs drawn up in the year 1065, the second in the year 1129, the third in 1151; and they were all three drawn up at Vilvorden by the Beguines, who at that time were settled there. (See Aub. Miræi, *Opera Diplomatico-historica*, tom. ii. c. xxvi. p. 948, and tom. iii. p. 628. Edit. nov.; Eryc. Puteanus, *De Beghinarum apud Belgas Instituto et Nomine Suffragio*, printed in A. Rickel's *Vita S. Vaggæ cum Annotationibus*, p. 65-227. 4to. Douay, 1631.) Hence Mosheim thinks it almost probable that a convent of Beguines must have existed at Vilvorden before the thirteenth century, and of course before that of Nivelle.

In the fourteenth century, the societies of the Beguines had become very numerous in Germany; but as they adopted some of the mysterious and extravagant opinions of the 'Mystic brethren and sisters of the free Spirit,' we find in the German records of this century a frequent distinction of them, into those of the right and approved class, and those of the sublime or free spirit, the former of whom adhered to the public religion, while the latter were corrupted by the opinions of the mystics. The Beguines now shared in the persecution which fell upon the mystics. The Clementina, as it is called, or constitution of the council of Vienna, A D. 1311, against the Beguines, or those female societies who lived together in fixed habitations, under a common rule of pious discipline and virtuous industry, gave rise to a persecution of these people which lasted till the reformation by Luther, and ruined the cause both of the Beguines and Beghards in many places. For though the pope, in his last constitution, had permitted pious women to live as nuns in a state of celibacy, with or without taking the vow, and refused a toleration only to such of them as were corrupted with the opinions of the Brethren of the free Spirit; yet the vast number of enemies which the Beguines and Beghards had, partly among the mechanics, especially the weavers, and partly among the priests and monks, took a handle from the Clementina to molest the Beguines in their houses, to seize and destroy their goods, to offer them many other insults, and to involve the Beghards in the like persecution. Pope John XXII. afforded the Beguines some relief under these oppressions, in the year 1324, by a special constitution, in which he gave a favourable explication of the Clementina, and ordered that the goods, chattels, habitations, and societies of the innocent Beguines should be preserved from every kind of violence and insult; which example of clemency and moderation was afterwards followed by other popes. On the other hand, the Beguines, in hopes of disappointing more effectually the malicious attempts of their enemies, embraced in many places the third rule of St. Francis and of the Augustines. Yet all these measures in their favour could not prevent the loss both of their reputation and substance, for from this time they were oppressed in several provinces by the magistrates, the clergy, and the monks, who had cast a greedy eye upon their treasures, and were extremely eager to divide the spoil. (See Mosheim's *Eccles. History*, edit. 8vo. Lond. 1782, vol. iii. pp. 228, 229, 230, 231, 377, 379.) Mosheim intended a separate work upon the Beghards and Beguines, which never appeared; though he states himself, in his history, that it was then almost finished. The most copious writer on the long persecution of the Beguines is Christianus Wurstisen, or

Urtisius, in his *Chronicon Basiliense*, written in German, lib. iv. cap. ix. p. 201. fol. Basil, 1580.

There is a little work of great rarity, entitled *Lettre de M. l'Abbé S*** à Mlle. de G***, Béguine d'Anvers, sur l'Origine et le Progrès de son Institut.* 12mo. Par. 1731, from which we learn that Beguinages, as they were called then, existed at Aix-la-Chapelle, Alost, Anderlech, Anghoin, Antwerp, Arras, Arschot, Audenarde, Bethune, Bruges, Brussels, Cambray, Cologne, Courtray, Diest, Douay, Ghent, Grandmont, Hasselt, Herenthals, Hochstraten, Huy, Isch, Lew, Liége, Lierre, Lille, Lovz, Louvain, Malines, Mons, Namur, Nivelle, Orchies, Ruremonde, Termonde, Tirlemont, St. Trond, Tongres, Tournay, Tournhout, Valenciennes, Venlo, and Vilvorden. It contains also two representations of a Beguine, one in the dress worn in the chapel of her house or convent, and the other in her walking habit. Communities of Beguines still subsist in Holland, Belgium, and Germany. In Brussels there is a portion of the town still called the Beguinage, inhabited by about a thousand Beguines, governed by matrons. There are Beguinages also at Amsterdam, Antwerp, and Mechlin.

BEHEADING. [See DECAPITATION.]

BEHEM, MARTIN, was a celebrated navigator and geographer of the fifteenth century. His name is written by various authors in very different ways: Behem, Beham, Behaim, Bœhm, Bœhem, Behen, Behemira, &c. He was born in the old imperial city of Nuremberg, somewhere about the year 1436. His family, which was respectable, or what was called 'distinguished' in those days, is said to have come originally from Bohemia. His education was carefully attended to, and he is said to have enjoyed the advantage of being instructed by the learned John Müller, better known under the Latin name of Regiomontanus. In early life he followed the profession of a merchant, continuing, however, to cultivate the mathematical, and particularly the nautical, sciences, which may have become more interesting to him from the circumstance of his having to make several commercial voyages. Even at this time he is said to have reflected a great deal on the subject of the antipodes, and, like Columbus, to have been convinced of the existence of vast tracts of land in the western hemisphere; but already many scientific men entertained vague notions of the kind.

Being on business at Antwerp in the year 1479, Behem became acquainted with some Flemings who were closely connected with the enterprising court of Lisbon, and who had formed colonies in the newly-discovered islands of the Azores. At their pressing invitation, Martin went to Portugal, where, as a skilful cosmographer and maker of maps, he was well received, that country being at the time wholly given up to maritime discoveries. The many controversies and contradictions concerning Behem's life begin at this point, but here, at least, they are easily settled. Cellarius and several other writers say that Behem was the discoverer of the whole group of the Azores, whereas there is ample evidence to show that some of them were seen by Vanderberg, a navigator of Bruges, in 1431, when Martin could be little more than a year old; that Gonsavo Velho Cabral visited and named the island of Santa Maria in 1432; and that all the islands were known in 1460, or nineteen years before Behem went to Lisbon, and connected himself as a geographer and explorer with the Portuguese government. These facts are recorded in Portuguese history. Other authors, again, merely make Behem the discoverer of the island of Fayal; and Mr. Otto, who has taken great pains to advance the fame of his countryman, attaches great importance to the following note, which he says was written in German, on parchment, and preserved in the archives of Nuremberg:—'Martin Beham, Esq., son of Mr. Martin Beham of Scopperin, lived in the reign of John II., king of Portugal, on an island which he discovered himself, and which he called Fayal, situated among the Azores in the Western Ocean.' But there is good ground for believing that the only two of the islands unknown even so early as 1449 (when King Alphonso of Portugal granted a license to his own uncle, Don Henry, to colonise the Azores), were the comparatively small and distant islands of Corvo and Flores; and its magnitude and position must of necessity have made Fayal, with the group to which it belongs, known soon after the discovery (in 1432) of St. Mary's and St. Michael's.

We now come to a fact in which his biographers generally agree, though they differ a few months as to date. In 1484, Behem was placed as a scientific man on board the fleet of the celebrated navigator Diogo Cam, who was commissioned to prosecute Portuguese discovery along the west African coasts, which were then only known as far as Cape St. Catherine in lat. 2° 30′ S. With that distinguished admiral the cosmographer went to Fayal and Pico; and this we believe to be the first time he ever visited the Azores. Leaving that group of islands, they bound in with the African continent, and, doubling Cape Verde, examined all the coast from the river Gambia to the river Zaire, or Congo, the mouth of which lies in lat. 6° S. Continuing their course, they made Cape St. Augustine, and finally reached Cape Cross, or De Padrono, in lat. 22° S., which was the limit of their voyage, and no less than *19° 30′ farther south than any* preceding discoverer had ventured. After an absence of nineteen months, Behem returned to Lisbon, where, in reward for his services, the king (John II.) conferred the honour of knighthood upon him in a public and unusually splendid manner.

In 1486 we hear of Behem at Fayal, where, and at which time, he married the daughter of Job Huerter, by whom he had a son. It appears to us, that, from his settlement in this island, and from the care he took to colonize and cultivate it, the mistake arose, in after years, of his having been the discoverer of Fayal. Martin Behem did not (as far as we can learn) accompany any other expedition for discovery either to Africa or elsewhere; but he busied himself in making charts, and occasionally went from the Azores to Lisbon and to Madeira, at either of which places he may have formed an acquaintance with Christopher Columbus. An important, but we think an unreasonable, conclusion has been drawn chiefly from the assumed meeting of these two great men.

In 1492, the year in which Columbus started on the expedition that ended in the discovery of the New World, Martin Behem paid a visit to his native city of Nuremberg, where, in the course of a year's residence, and at the earnest request of his countrymen, he made a terrestrial globe, some traits and guesses in which have, perhaps more than anything else, contributed to an obstinately maintained theory. When he returned from Germany to Portugal he was employed for a short time in some diplomatic negociations; but in 1494, retiring from all public business, Martin repaired to his estates in Fayal, where he lived tranquilly in the bosom of his family, continuing, however, to keep his attention awake to his old and darling subject, and to the progress of discovery, which after Columbus's first voyage was carried on more rapidly than ever. In 1506 he was once more at Lisbon, and on the 29th day of July in the same year, full of years and honours, he died in that city, leaving no works of any kind behind him, except the maps and charts he had made, and his globe. A recent tourist in Germany (Mrs. Jameson) mentions an interesting fact: the old house of Martin Behem in the city of Nuremberg is to the present day occupied by a globe and mapseller.

It is admitted on all sides that Martin Behem ought to be regarded as one of the most learned geographers, and as the very best chart-maker of his age. But these, his real and great merits, have not satisfied certain writers, who, moved by the prejudices of country, or a love of contradiction and paradox, insist that Behem, and not Columbus, was the discoverer of America. Cellarius and Riccioli both say that he visited the American continent and the Strait of Magalhaens, but Stuvenius appears to have been the first to give great importance to this doctrine: asserting in his treatise, *De vero novi Orbis Inventore*, that Behem had accurately traced on his globe preserved at Nuremberg the islands of America, and even the Strait of Magalhaens. Professor Tozen combated this assertion as far back as 1761, and for a quarter of a century the theory was laid aside as untenable. Dr. Robertson, in his *History of America*, took some pains to rescue the fame of Columbus, but the task was then considered almost unnecessary. In 1786, however, Mr. Otto, a diplomatic servant of the French government, but a German by birth, again renewed the nearly forgotten dispute, and in a long letter to Dr. Franklin stated his reasons for believing that Martin Behem had visited America before Columbus, and that all Columbus had done after him had been in pursuance of Behem's instructions and advice.

Mr. Otto does not seem to be aware that such an opinion was ever started before. His letter was published in the second volume of 'Transactions of the American Philosophical Society, held at Philadelphia for promoting Useful Knowledge.' After its appearance a variety of writers and compilers of cyclopædias and biographical dictionaries, without looking into the matter, took up Mr. Otto's story as something new and striking, not knowing that it was old and had been disproved. The way in which it opens is enough to throw discredit on the whole, for Mr. Otto repeats and believes the error that Behem was the discoverer of all the Azores. When he says that this impossibility is established by records preserved in the archives of Nuremberg, we can have no faith in the same kind of proofs as to the American discovery. It must be mentioned, moreover, that none of these records or documents 'preserved in the archives of Nuremberg,' with the exception of a letter said to be written by Behem, bear any date; and thus they may all have been written after the discoveries of Columbus and Magalhaens were well known, at least to the learned world.

According to one of these undated records, Behem, after residing twenty years at Fayal, applied, in 1484 (eight years before Columbus's expedition), to John II. of Portugal for the means of making a voyage of discovery in the south-west, and having procured some ships found out that part of America which is now called Brazil, whence, sailing southward, he went to the Strait of Magalhaens, and to the country of some savage tribes, whom he called Patagonians, because the extremities of their bodies were covered with a skin more like bears' paws than feet and hands.

Another of these Nuremberg documents, as quoted by Mr. Otto, says that Behem, traversing the Atlantic Ocean for several years, examined the American islands, and discovered the strait which bears the name of Magalhaens, before either Christopher Columbus or Magalhaens sailed in those seas, and even mathematically delineated on a chart for the king of Portugal the situation of every part of that famous strait.

With regard to the first of these assertions, which is the more definite of the two, it is perfectly well known that the only expedition for discovery fitted out by the Portuguese in 1484 was that of Diogo Cam, who certainly never went near America, and who, as we have already shown, was accompanied by Martin Behem. Indeed Mr. Otto, who quotes contradictory statements to support each other, and prove one and the same thing, himself allows that Behem was with Diogo Cam in his African voyage in 1484, *i. e.* in the very year that he is said to have applied for a fleet to go westward and to have discovered Brazil, &c., and in which year, as we have already stated, no other expedition than Diogo Cam's left Portugal.

Mr. Otto quotes as contemporary authorities one or two writers who did not live until many years after Behem's death and the discoveries both of Magalhaens and Columbus, and refers to several later authors who could be of no authority whatsoever. The chronicler Hartman Schedl was contemporary with Behem; but, as far as he is cited by Mr. Otto, who thinks the passage conclusive, he does not prove or even imply that Behem was the discoverer of America. The passage simply states that Martin Behem went in King John's ships *with Diogo Cam*, that they coasted along the southern ocean, crossed the equator, got into the other hemisphere, where, facing to the eastward, their shadows projected towards the south and right-hand; that thus the enterprise may be said to have opened to us another world hitherto unknown, and that having finished this cruise in twenty-six months they returned to Portugal with the loss of many of their men. Now, as it has been seen, Diogo Cam, though keeping close to the African coast, did indeed cross the equator and even reach the 22° of southern latitude, and the great extent of his discoveries on the coast of Africa, occupying 19° 30′, might in those times be very well called a new or unknown world, without any reference to America.

Mr. Otto says that Columbus, being at Madeira, met Martin Behem, who informed him of his discoveries in the western world and showed him which way to shape his course. But this assertion falls to the ground when we find that the course actually taken by Columbus was very different from the alleged one of Behem, and far to the north of the pretended discovered land marked on Behem's famous globe. This globe, though a remarkable performance, was of necessity, in those times, both defective and erroneous even in relation to the old world. It was made up from the authorities of Ptolemy, Pliny, and Strabo, and still more from the excellent travels of Marco Polo and the fabulous travels of Sir John Mandeville. From this very globe it should appear that his geographical information in the east did not extend beyond Japan, nor in the west beyond the Cape Verde Islands; and that all that he dotted down on his globe beyond those islands was from mere conjecture. Of two islands which he set down between the Cape Verde group and America neither exists in the place assigned to it. One was called St. Brandon, the other Antilia, and from the similarity of the latter name it has been supposed to be one of the Antilles or American islands discovered by Columbus. But Columbus only gave the name of a fabulous island to a real one; for, long before his time, the denomination of Antilia or Antilla had been assigned to a supposed country somewhere westward of the Azores. Andrea Bianco, a Venetian geographer, who lived at the beginning of the fifteenth century, indulged precisely in the same speculation. Among a collection of his charts bearing the date of 1436 (*i. e.* fifty-six years before Martin Behem made his globe) there is one in which he lays down a very large island at a great distance to the west of the Azores, and which he calls Antilia, and marks the beginning of another island which he calls La Man di Satanasso, or the Devil's Hand.

Mr. Otto admits that neither Martin Behem nor the Portuguese who employed him, and who were exceedingly jealous of the discoveries made under the Spanish flag, ever even hinted, at the time that, Columbus was indebted to another for his discovery of America. Had there been the shadow of a doubt on the subject the court of Lisbon would have made itself heard throughout Europe, and would not have left the controversy to a few literary men living long after the event. Mr. Washington Irving, in his *Life of Columbus*, has come to the now incontrovertible conclusion that Martin Behem had no sort of claim to the honours due to the great Genoese.

BEHE'MOTH, בְּהֵמוֹת, is the *pluralis majestatis*, or majestic plural, or plural of excellence, of *Behemah*, i. e. *beast, cattle*, and occurs in Job xl. 15-24, as the name of a large herbivorous animal, the description of which, according to Bochart, Scheuchzer, Herder, Gesenius, and other interpreters, corresponds with the appearance and qualities of the hippopotamus. Gesenius thinks that the name behemoth was a Hebrew corruption of the Egyptian word *Pehemoedh*, πεχεμοεδ—bos marinus seu aquaticus—the water ox, or hippopotamus, which is described by various travellers.

Behemoth is thus described in Job xl. 15-24: 'Behold now behemoth which I created as well as thyself; he eateth grass as an ox. Behold now his strength in his loins, and his power in the muscles of his belly. He bends his extremity (*i. e.* trunk, proboscis) like a cedar; the sinews of his terrors (*i. e.* his terrible sinews) are interwoven (*i. e.* twisted, or interlaced). His hollow bones are like tubes of brass; his solid bones are like bars of iron. He is the chief of the works of the Almighty. His Maker gave him his sword (*i. e.* the weapon of his tusks). For mountains bear his fodder, and all the beasts of the field play there. He lieth under the lotus-bushes; in the covert of reeds and mire. The lotus-bushes cover him with their shadow; the willows of the brook encompass him. Behold, the river overfloweth, yet he fleeth not. He is undismayed, although Jordan rush against his mouth. With his eyes he takes it (his aim), his nose pierces through snares.' This is frequently illustrated by a reference to the elephant, who tries with the extremity of his trunk whether the enclosures are secure. It was perhaps in allusion to the irresistibility of Behemoth that Thomas Hobbes of Malmsbury gave the title *Behemoth* to his history of the causes of the civil wars of England, from the year 1640 to 1660.

This description appears to answer more to the elephant than to the hippopotamus; and the opinion of the oldest commentators, who understood it of the elephant, is confirmed by the fact that the Arabs are in the habit of adding the epithet *mehemoth* to their name of the elephant, *fihl*, if he is very large (Strahlenberg, English translation, p. 403, cited in Cuvier's *Ossemens Fossiles*, vol. i.) It is singular that the Siberians call the elephants which have been preserved in their country, *mammout*, or *momot*, or *momoth*, or *mammoth*, or *mammouth*.

The word *behemoth* occurs also as the mere plural of behemah, *cattle*, in Ps. l. 10: 'For every beast of the forest is mine; and the cattle (behemoth) upon a thousand hills.' (Compare Psalm lxxiii. 22.) Jarchi and other rabbies understand these passages as the majestic plural for one great ox, which consumes each day the verdure of a thousand mountains; but, according to them, it is providentially ordered that whatever he eats in the day grows again during the night. They conclude from the passage, 'male and female created he them,' that there were two behemoth; but, that they might not destroy the whole world by multiplying, the female was killed, and the flesh, which is salted, is reserved for the first dish at the feast of the blessed in Paradise. (For the literary references see Buxtorfii *Synagoge Judaica*, fourth ed. Basileæ, 1680, pp. 734-736.) [See HIPPOPOTAMUS.]

BEHMEN, JACOB. [See BÖHME.]

BEHN, APHARA, sometimes spelt **APHRA,** and **AFRA,** a dramatist and miscellaneous writer, was of a good family in the city of Canterbury: she was born in the reign of Charles I., but in what year has not been ascertained. Her father, whose name was Johnson, was related to the Lords Willoughby, and by means of his connexion obtained the post of lieutenant-general of Surinam, and its dependencies; for which place he accordingly sailed with his daughter, then very young, but died on the passage. Aphara, however, continued the voyage; and appears to have resided at Surinam for some length of time, though under what circumstances is not known. She there became acquainted with the famous slave Oroonoko, whom she represents to have been a prince among his own countrymen, and a man of an heroic cast of character, and who afterwards became the subject of a novel from her pen, and of a tragedy, better known, by her friend Southern. After her return to England she married Mr. Behn, a merchant of Dutch extraction; and appears to have been personally introduced to Charles II., who was so much pleased with her account of Surinam, and probably with the freedom and vivacity of her manners, that he thought her (say the biographers) a proper person to be intrusted with the management of some important affairs during the Dutch war, which occasioned her going into Flanders, and residing at Antwerp: as some other biographers say, in the character of a spy; or as others have put it, 'she engaged in gallantries for the good of her country.' It is supposed that by this time her husband was dead. The engaging patriotism of Mrs. Behn succeeded in discovering the intention of the Dutch to sail up the Thames and Medway, and to put the English to the shame of having their ships burnt, as they actually did; but the court of Charles, with its usual levity, giving no credit to the report of its fair envoy, she is said to have renounced all further politics, out of mortification, and to have devoted the rest of her stay in Holland to amusement. She set out shortly afterwards on her return to England, narrowly escaped death (for the vessel foundered in sight of land, and the passengers were saved in boats,) and became for the rest of her life an authoress by profession, and a woman of gallantry. She wrote seventeen plays, besides poems, tales, love-letters, and translations both in prose and verse. The once celebrated letters between a nobleman and his sister-in-law (Lady Henrietta Berkeley and the infamous Lord Grey) are hers. She contributed the paraphrase of Œnone's Letters to Paris, in the English collection of Ovid's Epistles; and translated Fontenelle's Plurality of Worlds, and the sixth book of Cowley's Latin poem on Plants. Both her opinions and her talents naturally brought her acquainted with the leading wits of the day, the wildest and the staidest, Rochester, Etherege, Charles Cotton, Dryden, Southern, &c.; and at one time, we know not how long, she describes herself as having been forced to write for her bread; but, from an expression in Langbaine, we guess that during the latter part of her life she was in more easy circumstances. She died between forty and fifty years of age, and was buried in the cloisters of Westminster Abbey, with the following absurd inscription:

'Mrs. Aphara Behn died April 16th, 1689.

'Here lies a proof that wit can never be
Defence enough against mortality.
Great poetess! O, thy stupendous lays'
The world admires, and the Muses praise.

Revived by Thomas Waine, in respect to so bright a genius.'

This Mr. Waine, it seems, was said, 'by the envious of her own sex,' to have been the author of most of the pieces that went under her name; but her biographers justly adduce the above verses as a sufficing proof to the contrary.

Aphara Behn is described as having been a graceful comely woman, with brown hair, and a piercing eye; something passionate, but generous; and who would sooner forgive an injury than do one. She would write in company, and at the same time take her part in the conversation. We have read somewhere, that the 'Lycidas,' for whom she represents herself as entertaining a hopeless passion, was Creech.

The character of Mrs. Behn's writings is that of a lively mediocrity, availing itself of all the license of the age. She had a feeling for truth, great animal spirits, great facility in versification, an unceasing flow of sprightly but not uncommon ideas, and courage enough to put down whatever came into her head. The result was, some pleasing little novels, chiefly taken from the French; some songs and poetical translations, very clever; and a set of dramas, successful in their day, and astounding for their licentiousness. Pope's couplet is well known:

The stage how loosely does Astræa tread,
Who fairly puts her characters to bed.

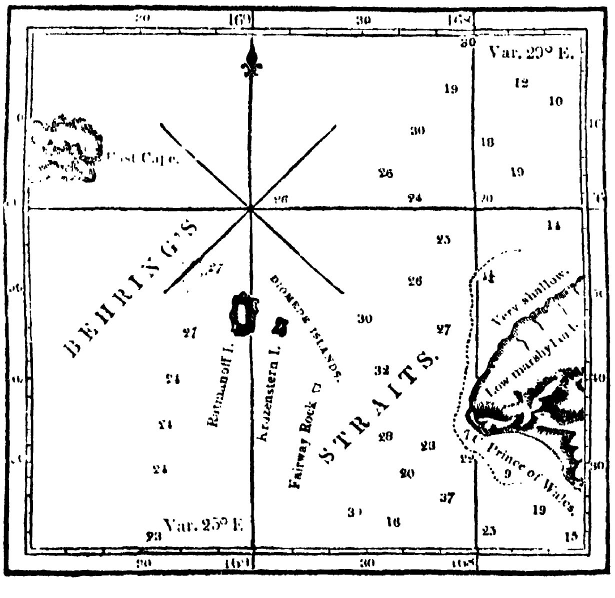
Astrœa was the poetical name by which she was known among her contemporaries. A modern reader who dips into her plays is astonished to find of what a heap of meretriciousness they are made up; but luckily he cannot read far. The very liveliness, not being of a high order, becomes tiresome. There is an endless imbroglio of rakes, demireps, and common-place situations, out of which he is glad to escape. Mrs. Behn seems scarcely to have had any idea of love, except as an animal passion; but as this was the feeling of the age, and she was probably brought up in it, besides being early thrown out into the world, and ultimately surrounded with men of wit, who helped to spoil her, a reflecting reader will perhaps give her the credit of having been injured by the very candour and docility of her nature; and consider it probable, that, had she lived in better times, she would have been a real ornament to her sex. (*Dramatic Works of the late incomparable Mrs. Aphra Behn; Biographia Britannica, &c.*)

BEHRING, VITUS, was by birth a Dane, and in his youth made many voyages to the East and West Indies; but being tempted by the great encouragement held out to able mariners by Peter the Great, he early entered the navy of Russia, and served in the Cronstadt fleet, in the wars with the Swedes. He obtained the rank of lieutenant in 1707, and of captain-lieutenant in 1710; the date of his becoming captain is uncertain, but in 1732 he was promoted to the rank of captain-commander previous to setting out on his last expedition.

The Empress Catherine being anxious to promote discovery in the north-east quarter of Asia, and to settle the then doubtful question as to the junction of Asia and America, Behring was appointed to command an expedition for that purpose. He left St. Petersburg in February, 1725, and after exploring several rivers, travelled over-land by the way of Yakutsk, on the Lena, to Okhotsk, then crossed over to Bolcheretsk, and arrived at Nischnei Kamtchatka Ostrog. Here he built a small boat, and sailed on the 20th of July, 1728, coasting Kamtchatka till he reached in August (67° 18′ N. lat. by his observations) a cape which, from the land beyond it trending so much to the westward, he supposed to be the north-easternmost point of Asia. In this conjecture, however, as has since been proved, Behring was mistaken; the point reached by him must have been Serdze Kamen: but with this conviction on his own mind, and the approach of winter, he determined to retrace his steps, and he returned in safety to Nischnei Kamtchatka. The following year he made another attempt, but a continuance of bad weather obliged him to shape his course in an opposite direction, and he reached Okhotsk, having doubled the southern promontory of Kamtchatka, which peninsula was up to that time generally believed to join Japan. From Okhotsk he went to St. Petersburg, and having obtained his promotion, in 1733 took the command of an expedition for the purposes of discovery, which was fitted out on a very large scale. After several exploratory excursions, he stationed himself at Yakutsk, directing various detachments of his officers down the rivers on different points of the Frozen Ocean. In 1740 he reached Okhotsk, where vessels had previously been built for him, in which he sailed for Awatska Bay, where he founded the present settlement of Petropaulovski, and passed the winter. His discoveries to the northward being deemed sufficiently satisfactory, he was now directed to proceed to the eastward towards the American continent. He left Awatska in June, 1741, steering to the south-east, but having reached the parallel of 46° without seeing land, he altered his course to the north-east, and on the 18th of July (having been forty-four days at sea) he descried very high mountains covered with snow in lat. 58½° N., having made, according to his reckoning, 50° of E. long. from Awatska. He now followed the coast to the northward, which was found to take a very westerly direction, but his crew suffering from sickness, and the ship being in a very disabled state from bad weather, he resolved to return to Kamtchatka, which, however, he was not doomed to reach. Having passed several islands, his ship was wrecked on that which now bears his name, on the 3d of November, 1741: Behring died on the 8th of the following month. He may be said to have been half buried alive, for the sand rolled down continually over him in the ditch where he lay, but he would not suffer it to be removed, as it afforded him warmth.

In the following summer the survivors of his crew reached Kamtchatka in a small vessel which they built from the wreck, and thus some account of this ill-fated voyage was preserved. With regard to the places that he touched at on the American shore, they must be very undefined; but the fact of the westerly trending of the coast, and the high mountains, seem to place his first landfall about Admiralty Bay, on that part of the coast now called New Norfolk. The islands mentioned by him must have been some of the Aleutian Archipelago. (Müller's *Account of Russian Discoveries.*)

BEHRING'S STRAITS, which connect the Pacific with the Polar Ocean, are formed by the approach of the continents of America and Asia; the two nearest points of these continents are Cape Prince of Wales to the east, and East Cape to the west, which are distant only 50 miles from each other in a N.W. and S.E. direction. They are both bold and high promontories, but the hills on the American side are more ragged and peaked. About a mile to the northward of Cape Prince of Wales, a low swampy shore begins, which continues all the way to Kotzebue Sound. The greatest depth of water in the straits is about 32 fathoms: the bottom is soft mud in the middle, and sandy towards each shore. About midway across are three islands, called the Diomedes, the largest of which (Ratmanoff) is about four miles long; the next (Kruzenstern) nearly two miles, and the last a mere rock. Neither these islands nor the adjacent shores are permanently inhabited, though frequently visited by the Esquimaux in their excursions.



These Straits derive their name from the celebrated Russian navigator, Vitus Behring, who in 1728 left Kamtchatka and made a coasting voyage to the northward, though it is by no means certain that he ever passed East Cape. To our own countryman Cook we are indebted for more accurate information about these straits, which have recently undergone a stricter examination by Capt. Beechey. It is uncertain whether these straits are blocked up during the winter, though it does not appear probable that they are, as the ice in these seas is not of the heavy nature that it is in Baffin's Bay, and therefore only takes the ground in very shallow water. The prevailing current appears to set through the straits to the northward, but it has not that decided character which it has farther to the northward, where, along the American coast, it runs strong to the N.E.

BEHRING'S ISLAND is situated in the North Pacific, 100 miles S.E. of Cape Kamtchatka. It was first discovered by Behring, on his return to Kamtchatka from the voyage of discovery on the coast of America in 1741. Soon after, some Kamtchadales went over to the island to hunt the sea-otter, foxes, and other animals, for their skins. It was uninhabited at the time of its discovery, and was barren in the extreme, without a shrub on its surface, the only fire-wood being what was cast on the beach. It has since become an important trading station, and vessels from Okhotsk and Kamtchatka, trading to the numerous islands in these seas, generally winter here, and cure a quantity of the flesh of sea-animals for their voyage.

The island is high to the N.W., steep and cliffy, but slopes gradually down to the southern shores, which are low; the island is nearly surrounded by a rocky coast. Fresh water is found on it. The north point of the island is in 55° 22′ N. lat., 165° 51′ E. long.

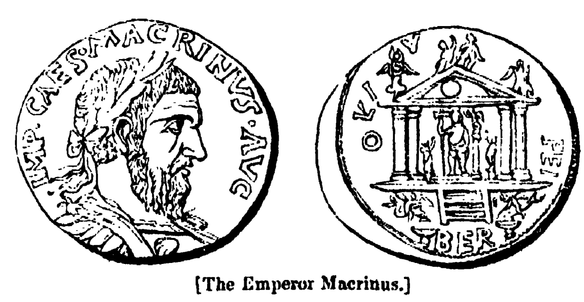
BEHUT, the antient Hydaspes. [See PENJAB.]

BEIRA. [See BEYRA.]

BEIRUT, or BAIROUT (Βηρυτὸς, Berytus, Steph. Byzant.: see Dionys. Periegetes, l. 411, for the quantity of the penultima), is a town of Syria, on the shores of the Mediterranean, situated on the south side of an open bay. It was a Phœnician city of great antiquity. The name is supposed by some to have been derived from the Phœnician deity Baal-Berith, who had a temple here; but Stephanus Byzantinus says it was so called from its abundant supply of water: Beer (Βήρ), he adds, signifies in the Phœnician language a *well*. [See BEER-SHEBA.] Diodotus Tryphon entirely destroyed it about 140 B.C., but after the conquest of Syria by the Romans, it was rebuilt near the site of the antient city. Augustus, who made it a colony called it after his daughter, with the epithet 'happy,' Colonia Felix Julia, and medals were afterwards struck in honour of the Roman emperors, bearing the legend Colonia Felix Berytus. (Plin. v. 20.) Agrippa, the grandson of Herod the Great, decorated the town with a theatre, amphitheatre, baths, &c., and instituted games. Herod the Great held here an assembly, in which he condemned his two sons, Alexander and Aristobulus, on the charge of conspiring against his life. After the capture of Jerusalem, Titus celebrated the birth-day of his father Vespasian at this city. Berytus was famous for the study of the law, for which there was a celebrated school in the city, the foundation of which is ascribed to Alexander Severus; it certainly flourished, at least before Diocletian. Justinian called it the 'nurse of the law,' and

[Coins of Berytus from the British Museum, actual size.]

[The Emperor M. Aurel. Antoninus.]



[The Emperor Macrinus.]

would not allow any other city than Rome, Constantinople, and Berytus, to have professors who should expound the Roman law. (See the second epistle prefixed to the *Digesta.*) The splendour of this school, which preserved in the East the language and jurisprudence of the Romans, may be computed to have lasted from the third to the middle of the sixth century. (Gibbon, ii. 294.) In 551 A.D. Berytus was nearly destroyed by an earthquake.

When the Saracens' overran Syria, Berytus fell into their hands. It was taken from them in 1111, by Baldwin, king of Jerusalem, but retaken by Saladin in 1187. During the Holy Wars it often changed masters, and is the scene of the fabled victory of St. George over the dragon. Till the year 1791 the French had a factory at Beirut, but they were expelled by Djezzar, pasha of Acre, who seized the place from the emir of the Druses, to whom it then belonged, and placed a Turkish garrison in it.

Since this time both the town and the adjacent country have been greatly neglected, though it still continues the entrepôt of the commerce of the Druses and Maronites, whence they export their cottons and silks, and receive in return rice, tobacco, and money, which they exchange for the corn of the Bekaa and Havuran. As the town was greatly inconvenienced for water, Djezzar cut a canal from the River Beirut, which falls into the bay near the city, and built fountains, in excavating which much of the antient remains was discovered. He also built the present walls, after the bombardment of the place by the Russians, but they are very weak.

Beirut now contains few traces of its former splendour: a bath, pieces of granite columns, several of which were still standing when Pococke visited the place, and a few other fragments, are all that now remain. But a great number of granite columns may be seen along the shore beneath the water, and part of the present mole is composed of them. From the debris without the present walls, it appears that the antient town occupied a larger space than the modern, which is but a small place. The walls are strengthened by several towers, and there are five gates to the city. It receives a copious supply of water from a small river called Nahr Beirut, which rises in Mount Libanus, and flows into the sea a short distance from the town; the water is conveyed by the canal before-mentioned, and received into reservoirs and fountains. The streets are narrow and dirty, like those of all Turkish towns: the houses are mostly built of stone. The town is commanded by some low hills to the S.E. Its population is estimated at 6000 souls, of whom the Turks form one-third. There is a large and well-built mosque in the city, formerly a Christian church, dedicated to St. John, and there was a Capuchin convent. The suburbs of the town are as large as the city itself.

In point of locality, Beirut is as pleasantly situated as any town in Syria: it stands at the verge of a beautiful plain, varied with small hills, and extending to the foot of Mount Libanus. The surrounding country is covered with kiosks, and enriched with groves of vines, olives, palms, and orange, lemon, and mulberry trees; behind which rises the lofty chain of Libanus. No corn is produced around the town; a small red wine is made on Mount Libanus, which is cheap and good; but raw silk is the staple, which, with cotton, olives, and figs, is exported to Cairo, Damascus, and Aleppo. Game is abundant, the beef from Libanus is excellent, and supplies of all sorts may be procured good and cheap.

The bay is large, and the anchorage good, though open to the northward; formerly there was a port, but now there is only a small mole sufficient to shelter boats. The entrance to the river is too shallow to admit a boat of any size. There is a rise and fall of about two feet, but no regular tide. Beirut is in the pashalik of Acre. It lies in 33° 49½′ N. lat., 35° 27′ E. long., 40 miles S.S.W. of Tripoli, and 13 miles N.N.E. of Saide.

(Pococke's *Travels in the East*; Volney's *Travels in Syria*; Browne's *Travels*; Mangles and Irby; Purdy's *Mediterranean Pilot, &c.*)

BEIT is an Arabic word, which properly signifies a tent or hut, but is likewise employed to denote any edifice or abode of men. It is often found as a component part of proper names in the geography of those countries that have become subject to the Arabs: *Beit-al-Harâm, i.e.* 'the sacred edifice,' or 'the edifice of the sanctuary,' a designation frequently given to the temple of Mecca; *Beit-al-Mukaddas*, 'the sanctified abode,' *i.e.* Jerusalem; *Beit-al-Fakih, i.e.* 'the abode of the jurist,' a town in Yemen, &c. The Hebrew word, corresponding to the Arabic *Beit*, is *Beth*, which we find employed in a manner perfectly analogous in the Old Testament: in the name *Bethlehem* (in Arabic *Beit-Lahm*, or *Beit-al-Lahm*), *i.e.* 'the house of bread;' *Beth-Togarmah*, 'the house of Togarmah,' *i.e.* Armenia. The same word, *Beth*, is in Syriac still more extensively used as a component part of geographical names. In Arabian poetry, *Beit* signifies a distich.

BEITH, a small town in the district of Cunningham in Ayrshire, Scotland, eleven miles from Paisley, on the road from Glasgow by Paisley to Irvine, Ayr, and Port-Patrick. The parish of Beith, a part of which runs into Renfrewshire, is about five miles in length from east to west, and four in breadth. On the north there is a small ridge of hills, from which the land slopes to the south. Its lowest elevation, Kilburnie Loch, is 95 feet above the level of the sea, and its highest, Cuffhill, 652.

The parish contains in all 11,060 acres, of which 10,560 are in Ayrshire and 500 in Renfrewshire. Its total valued rent is 6276*l.* 0*s.* 8*d.*, of which the part in Ayrshire makes 6111*l.* 7*s.* 4*d.*, and that in Renfrewshire 164*l.* 13*s.* 4*d.* The town has gradually advanced, from a few houses in the beginning of the last century, to its present state, when it has a good town-house, built by subscription, which serves as a news-room and justice of the peace court, a thread-mill, two lint, and three corn-mills, two branch banks, a parish church with a modern spire, a subscription library, and two meeting-houses, belonging to the Relief and Antiburger dissenters. The parish of Beith is famed for its dairy produce. The manufactures of the town have several times changed. At the beginning of the last century its chief trade was in linen cloth; at one time, between 1777 and 1789, one firm alone employed 270 looms in the manufacture of silk gauze; at present thread and cotton are the principal manufactures. The population of the parish in 1755 was 2064, and in 1831, 5113. The parish church contains 1257 sittings; the United Secession, 498; the Relief, 849. The parish schoolmaster has the minimum salary. The stipend of the clergyman is 16 chalder of victual, half meal, half barley, and a glebe of 40 acres. The clergyman's stipend was at that time 79 bolls of meal, and 17*l.* 12*s.* 6*d.*, and the glebe contained 33 acres, 3 roods. The poor's money is made up of collections at the doors of the parish church and some of the dissenting meeting-houses; of part of the dues of marriage proclamations, of the proceeds of an aisle in the parish church set apart for the poor, and of a farm bought with the poor's money in 1695; and the deficiency of the poor's fund is made up by a voluntary assessment on the valued rent of the parish and the rental of the town. There are several fairs held here annually.

In the parish, there are several quarries of freestone of rather an inferior quality. Coal, though not much wrought, has been found; and the abundance of limestone, of a very superior quality, has a ready sale, not only in the parish, but in those of Lochwinnoch, Kilbarchan, &c. Rich veins of ironstone have also been discovered.

(See Sinclair's *Account of Scotland*, vol. viii., compared with Chambers's *Gazetteer*, and Carlisle's *Topographical Dictionary of Scotland.*)

BE'JA, a comarca or district of Portugal, in the province of Alentejo, bounded on the north by the districts of Evora and Villaviciosa, on the south by that of Campo de Ourique, on the east by Spanish, and on the west by Portuguese Estremadura. The ramifications of the Serra de Viana cross it in all directions, and the rivers Odiarca and Freijo irrigate its plains, which are the most fertile in Alentejo. The former of these rivers rises near the capital, flows first to the north, afterwards to the east, and then to the south-east, and joins the second, which, rising in the mountains near Cuba, flows southwards: the united stream joins the Guadiana, not far from Os Pedroas. This comarca is so productive in grain, that, after supplying its inhabitants, many thousand fanegas or bushels are yearly sent to Porto del Rey to be embarked in the Sado, down which they are conveyed to Setubal and Lisbon. The vine, olive, and fruit-trees are also in great abundance. The pasturage is rich, and game is plentiful in the mountains. The extent of the district is about 30 miles from north to south, and 60 from east to west, and its population amounts to 55,310 souls.

Beja, the capital, is built upon a rock of granite on the south-western extremity of the district, and commands a plain so fertile, that it is said to produce more than a million of bushels of wheat yearly, besides a great quantity of oil, wine, and fruit. The town is almost circular, and surrounded by walls of Moorish and Portuguese construction. It has an old castle, in the opinion of Murphy one of the best in the kingdom; a good square, in which is the town-house; and regular streets, with good houses, inhabited by the rich citizens. The principal buildings are the convent of San Francisco, and the Casa de Misericordia, or charity house. The merit of these buildings, however, cannot be very great, as Murphy does not so much as mention them. Beja is the seat of a bishop, and of the civil authorities of the district. It contains four parishes, and 10,422 inhabitants. It is about 90 miles south-east of Lisbon, in 38° 5′ N. lat., and 7° 40′ W. long.

The city of Beja is of very great antiquity. It was a Roman colony under the name of Pax Julia. The original city stood at a short distance east of the present Beja. It was in the possession of the Moors from 717 to 1165, when Alonso, the first king of Portugal, wrested it from their hands. The chief part of the present city was built by Alonso III., and the castle was constructed under his son Dom Deniz. Many valuable relics of Pax Julia have been dug out at different times, which are preserved in the museum of antiquities at Evora. (Miñano; Murphy's *Travels in Portugal.*)

BEJA, or BOJA, an African people who inhabit a tract of country north of Abyssinia, and between the Mareb and the Red Sea to the south of the port of Suakim. Mr. Salt says the country of the Boja is two days' journey north of Hamazen, which is the most northern district of Abyssinia, and that they are partially under the influence of the Nayib of Massowa and of a Christian chief, the natives being half Musselmans and half Christians. Farther north-west, towards the Mareb, is a people called Tokué, who, in all probability, are the same as the Tokaeou, mentioned in the Axum inscription as being at that time subject to the king of Axum. That inscription refers to an expedition sent by Aeizanas, king of the Axumites, Homerites, &c., who reigned about the middle of the fourth century, against the revolted Bougaeitæ, the modern Boja. [See Axum.]

Mr. Salt places to the east of the Beja, and near the coast of the Red Sea, north of Arkeeko, another people, whom he calls Bekla. Ibn 'l Wardi, an Arabian geographer who wrote about the thirteenth century, and is quoted by Salt in the Appendix, says, 'the Bujja, or Boja, are the merchants of Habesh to the north, their country being between Habesh and Nuba;' and he describes them as black, naked, and worshippers of idols, but he adds that 'many Arabs of the tribe of Raben Ibn Nuzzar have connected themselves with these people, and intermarried with them.' This seems to show that the Beja, or Boja, were originally an African race, and became intermixed with Arab blood, and gradually and partially adopted the profession of Islamism. Bruce says the Beja speak a dialect of the Geez. Ibn 'l Wardi speaks of a mine of gold, probably the Jebel Dyab, and gold sands in the country of the Boja, in the valley of Allaki (the modern Salaka), the collecting of the gold constituting the chief support of the natives. In describing the land of Aidhab (now called Gidid, or Ras Gidid), which was then a much-frequented harbour on the Red Sea, to the north of Suakim, he says, 'a governor from the Bujja presides over it, and another from the sultan of Egypt, who divide the revenues between them. The duty of the governor from Egypt is to provide supplies, and the governor of the Bujja has to guard it from the Habshi,' the people of Habbesh or Abyssinia. It is evident that at the time of Ibn 'l Wardi the Beja were a powerful and widely-extended people, or confederation of tribes, and we have also an account of their sending a large army, together with the Nubians, to the assistance of the Christians of Oxyrhynchus in Upper Egypt, against the Saracen invaders. (See Appendix to Burckhardt's *Nubia.*) The Beja and Nuba are said to have had elephants in their army. With the Beja were a race of men of gigantic stature, called El Kowad, who came from beyond Suakim. They wore tiger-skins, and had their upper lips pierced with copper rings. Makrizi, also quoted by Burckhardt, gives a long account of the Beja. Burckhardt himself, in his journey from Berber to Suakim in 1814, passed through the country of Taka, 'which,' he says, 'forms part of the country of Bedja, whose inhabitants are called Bedjawa, and which extends from Goz Radjib on the Atbara as far southwards as the mountains of Abyssinia, while to the north the chain of mountains called Langay marks its boundaries towards the Bisharye or Bishareen. It includes various deserts and several hilly districts and valleys, some of which are very fertile. The range of country thus described extends from about 15° to 18° N. lat., and from the right bank of the Atbara to the shores of the Red Sea. It is in this region that the Mareb must terminate its course, either by being lost in the sands or by joining the Atbara.

Some writers (see Malte Brun's *Geography*) have placed the Beja much farther north, among the Ababde, and near the port of Habbesh, at the bottom of the large bay between Ras el Ans and Ras el Gidid, but the proper locality of the Beja seems now too well ascertained by the authorities above given to admit of doubt.

BEJAH, the antient Hydraotes. [See Penjab.]

BEJAPORE, a considerable province of the Deccan in Hindustan, lying between 15° and 18° N. lat. and 73° and 76° E. long. The province is bounded on the north by Aurungabad, on the east by that province and Beeder, on the south by Canara, and on the west by the Indian Ocean. Its length is about 320 miles, and its average breadth 200 miles.

Towards the west, running parallel with the coast, and at a distance varying from 25 to 60 miles from the sea, is a range of lofty mountains, forming a continuation of the Ghauts. In these mountains are several fortresses which, aided by their natural position, are of great strength. They are usually built on isolated eminences, the sides of which are either naturally scarped or cut perpendicular for 70 or 80 feet below their upper margin, with only one narrow path leading up to the fortress. The passes through these mountains to the low land of the Concan on the sea-shore are always difficult, and at times are rendered almost impracticable by the swelling of mountain-streams during the frequent and abundant rains in those high regions.

The province of Bejapore is divided into sixteen districts, viz.: the Concan (the low ground between the mountains and the sea), Colapoor, Mortizabad, Assodnagur, Bejapore, Sackur, Raichoor, Mudgul, Gujundeghur, Annagoondy, Bancapore, Gunduck, Nurgul, Azimnagur, Ryebaugh, and Darwar. The principal towns of the province are: Bejapore (the capital), Satara, Goa, Bijanagur, Warree, Colapoor, Darwar, Shahnoor, Hoobly, and Meritch.

The principal rivers in the province are the Kistna, the Toombuddra, the Beema, and the Gutpurba.

On the ruin of the Bhamenee empire in this quarter the Adil Shahy dynasty was established in Bejapore in the year 1489, and the sovereignty of the province was transmitted through eight princes, all of whom bore the name or title of Adil Shah. The founder of this dynasty was Aboul-Adil Shah, and the last of these sovereigns was Secunder Adil Shah, who was made prisoner by Aurungzebe in 1689, exactly 200 years after the founding of the sovereignty.

The Emperor Aurungzebe never obtained quiet possession of Bejapore, and after his death it speedily passed under the sway of the Mahrattas, with whom it remained until 1818, when, on the expulsion of the Peshwa Bajee Rao, this great province was brought under British government. On this occasion a treaty was made with the rajah of Sattara, then a minor, assigning to him a small principality under British protection out of his former dominions, the peshwa, who was actually the sovereign of the province, having been, nominally, the minister of the rajah. Under the stipulations of this treaty the tract of country which now forms the Sattara dominions was to remain for some time under the management of British officers, to be gradually transferred to the rajah's management, who was still bound to conform generally to the advice of the British resident, and to the British system in the collection of his customs' duties. The British government charged itself at the same time with the defence of his territory, and accordingly the rajah's military establishment is entirely regulated by the will of the East India Company, with which he is bound always to act in subordinate co-operation. One of the fundamental conditions of the agreement on the part of the rajah is the renunciation of all intercourse with foreign powers, a departure from which line of conduct would subject him to the loss of the protection and other advantages which are secured to him by the treaty. The whole of the stipulated territory was placed under the rajah's management in April, 1821, when he became twenty-one years of age: it yields him an annual revenue to the amount of about 20 lacs of rupees (200,000*l*.) The tract thus guaranteed to the rajah of Sattara is bounded on the west by the western Ghaut mountains, on the south by the Kistna and Warna rivers, on the north by the rivers Neera and Beema, and on the east by the territory of the Nizam. [See SATTARA.]

The remainder of the province, which is attached to the presidency of Bombay, is distinguished in the revenue records of the East India Company as the district of Darwar.

(Rennell's *Memoir of a Map of Hindustan*; Mill's *History of British India*; *Appendix to Report of Committee of the House of Commons on the Affairs of India*, political section, 1832.)

BEJAPORE, or **VIZIAPORE** (*Vijayapura*, signifying in Sanscrit the victorious or triumphant city), was the antient capital of the province of Bejapore. It stands in 16° 48′ N. lat., and 75° 46′ E. long., and is now the capital of the district of Bejapore.

The fortifications, which formed the outworks of Bejapore, are said to have been of such extent, that 15,000 cavalry might have encamped between them and the wall of the city. The citadel, or inner fort, contained the king's palace, the houses of the chief people, and large magazines. The great extent of Bejapore is still evident from the quantity of ruins in all directions, but the assertion of the natives, that in the time of its prosperity it contained 984,000 houses, is doubtless a great exaggeration. Many of the dwellings occupied a very considerable space, and had extensive gardens attached to them. That the population of the city, however, was once considerable, is evident from the great number of cupolas, spires, and minarets, still distinguishable among the ruins. The wall of the outer fort measures eight miles in circuit, and has seven gates, the Mecca, Shahpore, Bhamanee, Padshapore, Allahpore, and Futteh gates; the other gate, which is shut up, is not at present known by any particular name. When the province came under the dominion of the English in 1818, there were guns still mounted on the walls.

There is still a considerable number of buildings in the inner fort, or city, which contains a regular street three miles long, and fifty feet wide; it is paved, and has many mosques and private dwellings built with stone. The most remarkable buildings within the town are mausoleums and religious structures. Among the latter is a low Hindu temple, supported by numerous pillars, each of which is formed of a single stone: the building throughout exhibits the earliest and rudest style of Brahminical architecture. This temple is almost the only Hindu structure standing in this neighbourhood.

Within the fort are some cultivated inclosures, and in every part of its area, among the ruins of larger buildings, are mud hovels, as well as buildings of a better class. The only quarter of the city which contains any considerable number of inhabitants, is near the western gate, in the neighbourhood of the *jumma musjeed*, or great mosque. In this quarter, but without the western gate of the fort, is a well frequented bazaar, built of stone. Few of the larger buildings appear to have had any timber used in their construction, and the whole are solid and massive erections.

Passing from the western gate, a succession of ruins, the principal of which are Mohammedan tombs, occur to the distance of five miles, where the village of Toorvee forms at present the boundary of the antient city. A little to the east of this village stands the meanly-built Mohammedan mosque of Chunda Saheb, which to the present day is much resorted to by devotees. At a short distance beyond the western wall of the fort are the ruins of the mausoleum and mosque of Ibrahim Adil Shah, who died in 1626. These buildings were erected on a base 400 feet long and 150 feet wide: the centre of the mosque is covered by an immense dome supported on arches. The mausoleum is fifty-seven feet square, and consists of a very plain chamber, surrounded by a verandah twelve feet broad and twenty-two feet high. The exterior of both these buildings is of an opposite character to the interior, being elaborately ornamented. The fret-work of the ceiling of the verandah is covered with various passages taken from the Koran, sculptured in bas-relief.

The walls of the fort were formerly provided with twelve guns of immense size; only two of these remained when the English obtained possession of it. One of them was made of iron; the other, which was of brass, was cast in 1549, and carried shot weighing 2646 lbs. It was at one time intended to send this gun to England, but the state of the roads rendered its removal to the coast impracticable.

Previous to the expulsion of the Peshwa, the ruins of Bejapore were the haunt of numerous thieves, who have been wholly extirpated since the English authority was established in the province. The city, and the district in which it is situated, are inhabited chiefly by Canarese, who retain their original language and customs, and in 1818 assisted the English in expelling their Mahratta rulers.

BE′KES, a considerable county in the central part of Eastern Hungary, lying within one of the great subdivisions of that kingdom, called the 'Province beyond the Theiss,' between 46° 30′ and 47° 7′ N. lat., and 20° 16′ and 21° 36′ E. long. This county, popularly called the 'Egypt of Hungary,' contains about 1370 square miles, and is from 40 to 45 miles in its greatest length, and nearly the same in breadth. It is bounded on the east by the county of Bihar, on the north-west by those of Great-Cumani and Heves, on the south-west by that of Tsongrad, and on the south-east by those of Arad and Tsanad. The surface presents an almost uniform level, with an inclination so slight, that the rivers, which flow through it in a westerly direction to the Theiss, in consequence of their sluggish current and the lightness of the soil, convert the land near their banks into morasses. From this circumstance Békes possesses an unhealthy climate, and a highly fertile soil. It is productive in corn, and has excellent meadows and pastures, but is deficient in timber. The principal stream which traverses it is the Körös, called the White Körös when it enters the south-eastern districts of the county near Gyula, its capital. It then flows north-westward to the town of Békes, where it is joined by the Black Körös; it afterwards receives the Bükösd, and is subsequently increased by the Rapid Körös; thence it runs for some distance under the name of the Three Körös, but in its sinuous passage along the north-western frontier of the county it exchanges this designation, between Tur and Szarvas, for that of the Berettyo, and it is in these north-western parts particularly that marsh and swamp abound. The extent of land which has been turned to the purposes of husbandry or grazing is about 360,000 acres, or four-tenths of the entire surface: of these about 200,000 are arable, and 132,000 are used as meadows and pastures, the remainder being applied to horticulture, &c. The extent of wood-land does not exceed 27,000. Békes grows very large quantities of wheat of excellent quality, but the cultivation of other descriptions of grain is generally neglected. Much hay is also made, particularly in the districts within the minor circle of Békes, and reed-grass is also cut and stacked as winter-fodder for the cattle. The culture of vegetables is extensive. A considerable trade is carried on in water-melons; and the vine is partially cultivated, but its produce, not even excepting the Tsaba wine, which is the best, is of an inferior kind. Instead of slate or tile, rushes are employed for roofing houses and fencing gardens; and the want of wood for fuel compels the inhabitants in general to have recourse to straw, rushes, and cow-dung; for they are either too ignorant or too indifferent to avail themselves of the plentiful supply of peat which the country contains. The rearing of cattle and sheep is carried on upon a large scale. Much cheese and wool are brought to market, but the former is of indifferent quality; horses are bred in many parts. The county has no wild animals but wolves and hares. Of the water-fowl in the marshy districts the most noted are the nocturnal and the gray heron, the first of which produces the fine and delicate plumes with which the better class of Hungarians ornament their caps. The rivers produce abundance of fish; and the marshlands, crabs and tortoises. Bees are universally reared, and some individuals possess upwards of two hundred hives Békes is altogether destitute of mineral products.

The inhabitants, who are about 126,000 in number, consist mostly of Magyars, intermixed with a few Slawacks, Germans, Wallachians, and Jews. In no very remote age the country was scarcely better than a dreary waste: but in modern days, though even at present it is capable of sustaining double the number of individuals, the population has been greatly on the increase, for, according to official returns, it had risen from 71,557, in the year 1787, to 92,463, in 1805. The increase since the last date has averaged nearly 1200 annually; the greatest in any single year having been in 1816-17, when it was 5734. The people are a thrifty industrious race, but interest themselves in few pursuits except those connected with agriculture and cattle breeding. Two-thirds of them are of the Protestant faith; the remainder being chiefly Roman Catholics.

We possess no other data respecting the public burdens, except that the yearly quota which Békes contributes to the Hungarian treasury is about 4300*l.* (43,140 florins), independently of about 4500*l.* (45,642 florins) towards the expense of recruiting the army.

Békes is divided into two principal circles; that of Gyula including the eastern districts, and that of Csaba the western. It contains five market-towns and sixteen villages, among which Csaba, which was founded in 1715, is the largest village in Hungary if not in Europe, for it contains upwards of 2000 houses and 20,200 inhabitants; Orosháza contains 8100; and Tot Komlós nearly 5500 inhabitants: besides these there are sixty-one prædia, or privileged settlements. Gyula, though not the most populous town, is the capital, inasmuch as it is the spot where the provincial assemblies are held. The town of Békes is situated in the eastern part of this county, at the confluence of the White and Black Körös. The Catholic, Lutheran, and Greek denominations of Christians have each a church in the town. The number of houses is about 2000, and of inhabitants about 15,000. It has a considerable market for cattle, and the surrounding country produces much excellent wheat, and large quantities of wine, flax, honey, and vegetables. Close to it are the remains of a strongly fortified castle. It lies in 46° 46′ N. lat. and 20° 49′ E. long.

BEL. [See Belus.]

BELBE'YS, a small town in the Bahari or Lower Egypt, and the head place of a district or prefectship. It is situated on the right bank of the most eastern or Pelusiac branch of the Nile and on the borders of the desert, thirty miles N.N.E. of Cairo, and on the road from that city to Syria by Salhieh or Ras el Wadi, and about eight miles south of the antient Bubastis. Traces of the canal which joined the Nile to the Red Sea are seen in the neighbourhood of Belbeys. (French Description of Egypt; Jomard, quoted by Balbi in the *Abregé de Geographie.*)

BELED, or BALAD, is an Arabic word, which signifies a town, a province, or country, and is met with as a component part of many proper names in Oriental geography, *e. g.* in Biledulgorid, which properly is *Balad-al-Jarîd, i.e.* the 'Country of Palm-trees.' [See Atlas.]

BELEEFF, or BJELEFF, the capital of a circle of this name in the province of Tula in Russia in Europe, lying on the left bank of the Oka, about 80 miles S.W. of Tula, and about 680 miles (1029 versts) S.E. of St. Petersburgh. It is a large town, surrounded by a wall and ditch, and of remote date, for it is mentioned in native chronicles as the seat of the Viatitches as far back as the year 1147, when it belonged to the Tshernigoff domains. It contains about 1060 houses, mostly of wood, and a population of about 7000 souls: it has a public school, attached to a monastery, four nunneries, fifteen churches, two charitable asylums, a cutlery manufactory where the celebrated Bjeleff knives are made, fifty-one iron and two copper manufactories, several tanneries and breweries, and wax, tallow, and soap manufactories. It carries on a brisk trade with other parts of Russia, for which the Oka affords great facilities, and it has an annual fair, which is much frequented. It gives its name to an eparchate of the Greek church. It is in 54° 25′ N. lat., and 36° 5′ E. long.

BELE'M, properly BETHLEHEM, one of the suburbs of Lisbon, on the south-west part of the city, with which it is united. King Emanuel built a church here in 1499, in honour of the birth of Christ, and a monastery of Hieronymites. The church is a fine specimen of the mixed Norman-Gothic and Arabic styles; but the monastery is such a confused mixture of all styles, that there are no two columns alike. In the monastery is a royal vault, ornamented with white marble. Opposite the church a square tower rises out of the Tagus, and serves to defend both the suburb and the entrance of the river. At that tower, called Torre de Belem, all the vessels which enter the port of Lisbon are first visited by the custom-house officers. Near it is a commodious quay with numerous wharfs, made in the reign of Joseph I. The royal palace of Ajuda is also near Belem. Close by the palace are a botanical garden, a cabinet of natural curiosities, a chemical laboratory, and the Quinta da Rainha, a royal villa, with fine gardens, extensive parks, a menagerie, and an aviary of rare birds. Any respectable person, by giving a trifling sum to the keeper, may easily obtain admittance. Belem is a considerable place, and is inhabited by many of the nobility and rich citizens. This part of Lisbon suffered least from the great earthquake in 1755. In the opinion of Mr. Link, this was owing to the circumstance of the place being built on a rock of basalt, which he supposes to have been forced up by a similar convulsion at some very remote epoch. (Murphy; Link's *Travels in Portugal.*)

BELEMNITE, THUNDERSTONE, or ARROWHEAD (Zoology), from the Greek *βέλεμνον*, a dart or arrow, *pfeilstein* and *donnerstein* of the Germans, *pierre de foudre* of the French. Before the geological history of this extinct marine animal was well made out, few natural productions ministered more largely to the superstitious feelings of man. The antients, it was said, had a legend that they came from the lynx, and called them *Lapides Lyncis*, and *Lyncuria*. They were also, from being found on Mount Ida, and from their supposed resemblance to those organs, called *Idæi dactyli*, or *petrified fingers**. This idea was too much in unison with the gloomy imagination of the northern nations to be lost: we accordingly find the term *Devil's fingers* bestowed on them, and not unfrequently that of *spectre-candles.*

Afterwards came the age of Thunderstones, when this fossil was alleged to be the produce of electricity, and was called by the learned *Lapis fulminans.*

Subsequently, and at the period when organic remains were almost universally regarded as *lusus naturæ,* formed by the plastic power of the earth, the Belemnite was considered, even by those who had adopted more correct opinions upon the subject of many fossil shells, to be strictly mineral,—to be a stalactite or a crystal†; and by some who found it in the sandy parts of Prussia, where amber also occurs, it was supposed to be that substance petrified.

At length, it began to be granted that the Belemnite was of organic animal origin, and the conical cavity at its broader end caused it to be looked upon as the tooth of some unknown creature; while some pronounced it to be a spine, like those of an *echinus*, and others gave way to various conjectures not worth recording. Then arrived the dawn of Von Tressau, Klein, Breynius, Da Costa, Brander, and Plott, who allowed the fossil to be of testaceous origin, but knew nothing of its relative position. At last, the increasing light of science placed the belemnite in a comparatively clear point of view.

A substance with which fable had been so busy was not likely to have been overlooked in the old materia medica: we accordingly find that it was administered in a powdered state as a remedy for the night-mare, and for the stone. Dr. Woodward states, that in Gloucestershire, the powder was blown into the eyes of horses affected with watery humours; and, in Prussia, it is said to be used when pulverized in dressing wounds.

The true place of the Belemnite is among the *Cephalopods.* Cuvier, Lamarck, and indeed all modern writers of any note agree in this‡, and they also concur in allowing that it was an internal shell. It forms the first genus of the first family (*Orthocerata*) of Lamarck's first division of the *Cephalopods*, namely, the *Polythalamous* or *many-chambered division.*

Miller, in his interesting paper in the Transactions of the Geological Society, gives the following as the generic character:

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* These are the opinions of Woodward, Formey, and others, and they are repeated by Miller; but it is by no means clear that the antients were speaking of Belemnites on those occasions. That the Belemnite was called *Pierre de Lynx*, and that it was the article used in the old Materia Medica, as a remedy for the night-mare, stone, &c. &c., need not be doubted. But the question is, whether authors have not been rather hasty in concluding that the *Lapides Lyncis*, &c., of the antients (see *Ovid. Metam.* lib. xv. v. 413) were the fossils alluded to in this article.

Pliny's accounts (*Nat. Hist.* lib. viii. c. 38, and lib. xxxvii, c. 2 et 3) relative to these *Lyncuria*, *λυγκούρια* of the Greeks, are by no means uniform, and seem rather to refer to different kinds of true gems; and though, in the tenth chapter of his thirty-seventh book, he says that Idæi Dactyli are found in Crete, that they are of an iron colour, and resemble the human thumb ("finger" would have been more applicable to a Belemnite), it must be remembered that he has placed them in his catalogue of Gems; he has, it is true, inserted the *Cornu Hammonis* in the same list. It should not be forgotten that the Corybantes were called Idæi Dactyli.

If we turn to Theophrastus, who describes the *λυγκούριον* at some length (chapters 50, 51, 52, 56), we shall find nothing to sanction the opinion that it was a Belemnite, though it is clearly the Lapis Lyncis of authors. It is described, on the contrary, as a gem of very solid texture (*στερεωτάτη*), on which seals were engraved.

† So late as 1808 an analysis of it was given by Mr. T. Acton in Nicholson's *Journal*, under the name of a crystal called a "Thunder-pick." In the following year Farey corrected the mistake (in the same journal), and stated it to be "the *exuviæ* of an animal now unknown, called a Belemnite."

‡ We must except M. Raspail, who, in 1829, published his opinion, that these fossils were the cutaneous appendages of a marine animal, probably approaching the *Echinodermata*, and that the *Alveolus*, or chambered part, was a being distinct from the Belemnite (probably its parasite), which he calls an *Alveolite.*

'A cephalopodous? molluscous animal, provided with a fibrous spathose conical shell, divided by transverse concave septa into separate cells, or chambers connected by a siphuncle; and inserted into a laminar, solid, fibrous, spathose, subconical or fusiform body extending beyond it, and forming a protecting guard or sheath.'

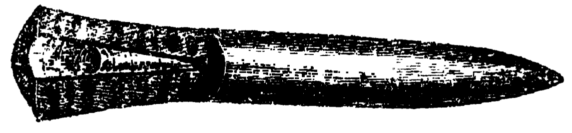
It will be observed that, in this definition, the word cephalopodous is followed by a note of interrogation; but there is so much evidence that the shell in question could have belonged only to an animal whose organization was similar to that of the existing cephalopods, that there is no longer room for doubt; indeed Miller gives a design of the supposed position of the shell within the living cephalopod, taking one of the cuttle fishes as his example.

De Blainville, in his Memoir published at Paris in 1827, has separated the genus into many divisions according to the shape of the shells, and has recorded a great many species.

Professor Agassiz is of opinion that the fossil ink-bags found in the lias at Lyme Regis belonged to Belemnites, and has come to this conclusion from a specimen which presents the ink-bag *in situ*.

The chief writers on these fossils, in addition to those above-mentioned, are Sage, Deluc, Beudant, D'Orbigny, and Voltz.

Belemnites are most abundant, and occur principally in the chalk formations, in the oolite and lias. *Belemnites canaliculatus* will give a general idea of the form and structure of the shell. The upper part is represented as cut off and laid open, to show the shell in its sheath, and the chambers.



[Belemnites canaliculatus.]

BELE'NYES, a large market-town in the southern part of the Hungarian county of Bihar, in the province 'east of the Theiss;' it is situated on the Black Körös, near the borders of Transsylvania, and belongs to the episcopal chapter of Grosvardein. It has a castle, a united Greek and Catholic, and a reformed-Lutheran church, with a population of about 5000 souls, all Magyârs or Wallachians. The neighbourhood produces good timber and fruit; and the quarries of Mount Belény, which lie opposite to the town, yield beautiful marble. It is in 46° 40′ N. lat., and 22° 20′ E. long.

BELESTA, or BELLESTA, a small place in France, to which the dictionaries, with obvious impropriety, give the name of town (*bourg*, or *ville*). It is in the commune of Peyrefite, the arrondissement of Castelnaudari, and the department of Aude. The whole population of the commune, as given in the *Dictionnaire Universel de la France*, 1804, our latest authority, was only 216; and the only claim to notice which the place has arises from a singular natural phenomenon, the intermitting spring of Font Estorbe. This spring rises in a natural grotto or cavern, and is ordinarily so copious as to form of itself the principal part of the river Lers, a feeder of the Garonne, which, passing two or three miles to the east of Toulouse, falls into the Garonne near Grenade. The stream which flows from the grotto is about eighteen or twenty feet wide, and a foot and several inches deep, and runs with a very rapid current;—yet in the summer and autumn (and indeed at other times of the year, if there has been a drought of any continuance) it becomes intermittent. According to the *Encyclopédie Methodique* (*Géographie Moderne*) the intermission takes place at equal intervals, twice in the twenty-four hours; and Expilly says it may be regarded as a sort of natural Clepsydra, or water-clock. When the time for its flowing comes, a great noise is heard on the side of the cavern from which the waters spring, and they gush out so copiously, that their effect in swelling the river Lers may be perceived five or six miles down the stream. (*Encyclopédie Methodique; Géographie Physique;* Expilly, *Dictionnaire des Gaules et de la France.*)

BELFAST, the chief town of the north of Ireland, is situated on the Antrim side of the Lagan, where that river runs into the southern extremity of the bay of Carrickfergus, 54° 34½′ N. lat., 5° 46′ W. long.; distant direct from London about 324 miles N.W., and about 85 English miles, direct distance, N. by E. of Dublin. Belfast gives its name to the barony of Upper Belfast, in which it is situated, as well as to Lower Belfast, another barony of the county of Antrim, and also to its own parish of Belfast, or Shankil. Shankil parish contains 18,411 acres; and the town land of Ballymacarret, on the opposite side of the river, in the county of Down, the populous suburb of which has been included in the borough by the Reform Bill, has an area of nearly 576 acres. Although built on a flat, which has in a great measure been reclaimed from the marshy banks and shallow bed of the river, Belfast is a healthy town. Its position, on the confines of two great counties, with a secure harbour and extended water-communication with the interior, is peculiarly favourable. The scenery around possesses great beauty and variety. Mountains of considerable height and bold outline skirting the western side of the rich valley of the Lagan, stretch northward from the town (which one of their highest elevations may be said to overhang) in a continuous chain, which renders the Antrim side of the bay exceedingly picturesque; while the fertility and cultivation of the opposite county and the intermediate shore can hardly be exceeded. Two bridges are built over the river, one at the east end of the town, an old bridge 2500 feet long, and consisting of twenty-one arches; and another, built in 1814, about half a mile up the river, on the south of the town, which connects the counties of Antrim and Down.

The origin of the town itself is modern; but, as an important pass, Belfast was known either by its original name *Bealfearsaid* (Fordmouth), or by its Norman translated appellation of 'Le Ford,' both in ancient Irish history and during the earlier occupation of Ulster by the English. Prior to the reign of Edward III., the northern pale (or compass of English jurisdiction in the north) embraced the present counties of Down and Antrim, and had even extended partially into Derry; and although the destruction of the early Irish Parliamentary papers at Trim has deprived us of all particular record of its administration, enough still remains in the Close and Patent Rolls of the kingdom to show that a great part, if not the whole, of these counties, up to nearly the middle of the fourteenth century, enjoyed the protection of the English law under regularly appointed and resident authorities. But although the power of the government was able to keep the native chieftains of the interior in comparative subjection, it was principally along the coast that the line of civilization and complete security extended; and accordingly it appears that the passes by which communication was chiefly kept up invariably lay near the sea. Of these, the ford at Belfast was the most important, and the castle was in all probability built for its protection, as we find it in the possession of William de Burgho, Earl of Ulster, at the time of his murder there in 1333. This event, more than any other connected with the place, had the greatest effect on the early condition of Ulster; for the rebellious English, by whom the murder was committed, inviting the native Irish to their aid from beyond the Bann, whither they had been driven before the vigorous administration of the early conquerors, let in such a torrent of barbarism, as in a short time swept all that frontier of the pale clear of whatever civilization its previous reduction had forced upon it. The castle of the ford now fell into the hands of the old O'Neils of Dalaradia, who, from a celebrated leader of their nation when in exile, were known as the Clan-Hugh-Buy, a title which still distinguishes two districts of Down, and which, prior to the settlement of the country under James I., extended over a great part of both Down and Antrim. During the lawless times that followed, when the pale had shrunk to Drogheda, and Carrickfergus was almost the only spot beyond the Newry mountains where the English had footing at all, Belfast castle, though frequently taken and dismantled, still remained in the independent though precarious possession of the O'Neils, until a chief of Claneboy, in 1552, after having been severely handled by two successive lords' deputies, consented at length to hold the castle by a legal tenure from the Crown. The rebellion of Shane O'Neil shortly after deprived his successor of even this possession, and Belfast, with the rest of the estates of the rebel chieftains, was confiscated. Sir Thomas Smith was the grantee of this district of the forfeited lands; but his first attempt to take possession being signally defeated, and his son, who commanded the expedition, slain, the adventurers under his grant dispersed, and the conditions of his tenure remaining unfulfilled, the estates escheated to the crown. Walter, first Earl of Essex, was the next to attempt the plantation of this intractable district, but he was still more unsuccessful than his predecessor. After the expenditure of much blood and treasure, he abandoned the undertaking in the course of the first year, and shortly afterwards died. Essex had, however, already seen the advantages of making Belfast a chief place in Ulster; and his recommendations to build there and erect a dock-yard were repeated by Sir John Perrot, when he visited that country, still lying waste, ten years afterwards. For more than a quarter of a century this state of things continued, until at length, in 1604, Sir Arthur Chichester, then lord deputy, procured from James I. the final grant, from which the prosperity of Antrim and rise of Belfast, as a town, may be said to date. This active and politic governor immediately set about planting his estate with emigrants from his paternal possessions in Devonshire. In addition to this, the general settlement of Ulster, which took place about four years afterwards, brought in a multitude of Scotch and English colonists. All this gave such security and countenance to their undertaking, that, in 1611, those who were settled in Malone had raised a town about Sir Arthur's castle of Belfast, which had been rebuilt; and this town was already so considerable, that it obtained a charter, erecting it into a borough, with sovereign burgesses and commonalty, and the privilege of sending two members to the Irish parliament.

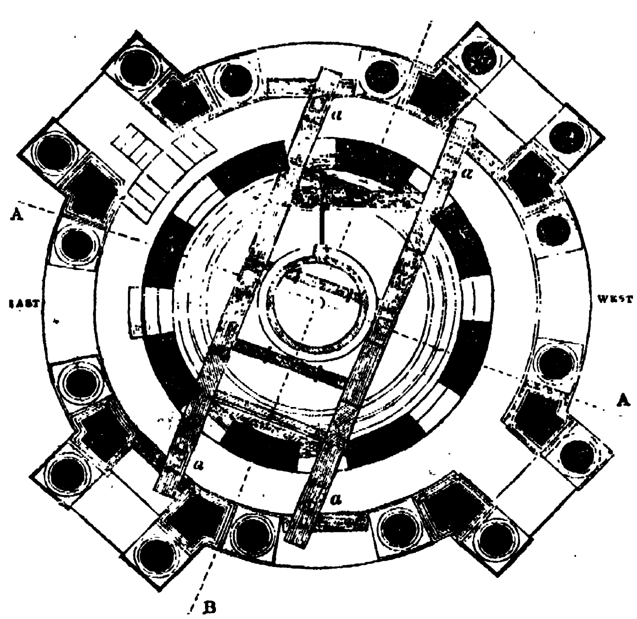
It has been generally supposed that the prosperity of Belfast ought to date from the year 1637, when the Earl of Strafford, after purchasing certain monopolies enjoyed by the adjacent port of Carrickfergus, threw open the competition to its better-situated rival, which thus prospered at its neighbour's expense: but it would seem that, long before this event, Belfast was a prosperous and rapidly-improving town, the central mart for the colonists of both Down and Antrim, and, from its vicinity to the woods, the seat of many trades and manufactures, which could not have been carried on in a place so ill supplied with fuel as Carrickfergus had long been. It was the prosperity of Belfast that forced the purchase of these monopolies by the Earl of Strafford, and for that unexampled prosperity Belfast is mainly indebted to the enterprise and liberality of the house of Chichester. Never perhaps has there been an instance of success so sudden and so complete as that which attended the undertaking of Sir Arthur Chichester in 1604. In seven years the most desert spot in Ulster was a corporate town, which, before it was half a century in existence, had gained a superiority over the oldest foundations north of Dublin. And now, but for the unhappy differences on the score of religion, which soon began to distract the minds of these thriving colonists, all would have been well. The Scottish clergy, men deeply imbued with the severe spirit which then characterized their national church, had been not only tolerated but encouraged under the liberal ecclesiastical administration of Usher. They enjoyed the tithes and the immunities of the then establishment, were ordained and inducted by its bishops, and were under its general jurisdiction. Their dislike of prelacy, which had slumbered while these advantages were yet uncertain, broke out as they acquired confidence in their confirmed possession; and even before the tyrannical measures of Lord Strafford, which are generally alleged as the prime cause of their discontent, had finally justified their opposition, disputes, complaints, and recriminations were frequent between this body of the northern clergy and their spiritual superiors. The subsequent interference of Wentworth and Laud, and the attempt to force the already indignant Presbyterians into a further conformity to the prelatic church, completed the breach; petitions and remonstrances went forward on all hands, and the resisting party had at length the gratification of mainly aiding in the overthrow of their great persecutor, when, in the midst of their triumph, the rebellion of 1641 threw the whole country once more into tumult and dismay. The Presbytery of Belfast, after seeing their town successively occupied by the troops of the Royalists, the Parliamentarians, and the Irish, forgot their ecclesiastical grievances in the dread of civil extinction, and throughout the succeeding wars were invariably well affected towards the royal and episcopal cause. The first expression of their attachment to these principles was made at a time which renders the avowal peculiarly honourable. On the execution of Charles I., in 1649, the Presbytery of Belfast put forth their 'Representation of the present evils and imminent danger to religion, laws, and liberties, arising from the late and present practices of the sectarian party in England,' &c., in which they freely express their indignation and disgust at the conduct of their old associates in anti-prelatic zeal. This brought down the vengeance of Milton, whose reply is written with great acrimony; but 'these blockish Presbyters of Clandeboy,' these 'unhallowed priestlings' of the 'unchristian synagogue' at Belfast, as the indignant republican calls them, evinced the sincerity of their professions, by enduring, with exemplary fortitude, throughout all the troubles that succeeded, the consequences of their fidelity to the crown. Such, however, was the respect in which the mercantile body of Belfast was held by all parties, that, during these wars, the town suffered little more than the negative injury of being, for a time, retarded in its prosperity. It was occupied or taken, time after time, by the troops of all the parties, which, for the next fifty years, made the rest of Ireland one scene of desolation, and was respected and left comparatively unplundered by them all. At length, in 1690, the arrival of William III. restored Belfast to the enjoyment of tranquillity. To reward their loyalty, the Presbyterian ministers of Ulster received from the king a grant of 1200*l.* per annum. Trade and manufactures now went on with increased vigour, and, in the beginning of the next century, we find the commercial progress of the town so considerable, as to place it in the first rank, on a scale of credit appended to the names of the different commercial towns of Europe, in the Exchange at Amsterdam. In 1708 the castle was destroyed by fire, and three of the Ladies Chichester burned to death. An anonymous tourist, writing of the town at this time, speaks in terms of high admiration of its commerce and manufactures, especially of its superior potteries. Printing had now been introduced, and Belfast, in 1704, had the honour of sending forth one of the earliest editions of the Bible printed in Ireland. The first newspaper printed in Ulster, the Belfast News-letter, which still has a large circulation, was commenced here in 1737. A local militia was also called into being by the Scottish rebellion of 1715; and the inhabitants of Belfast, having once accustomed themselves to look to their own resources for defence, have ever since been ready to take up arms when necessary, whether against foreign invasion or intestine revolt. In 1758 the first census of the town was taken: it then contained 1779 houses, inhabited by 7993 Protestants, and 556 Roman Catholics, in all 8549; of whom 1800 were able to bear arms. The number of looms in this year was 399. The introduction of the cotton-spinning trade, in 1777, opened a new field for industry. In twenty-three years, from its commencement, at which time there was not one cotton-loom in Ulster, it numbered no less than 13,500 operatives; while in a circuit of ten miles, including the flourishing town of Lisburn, the number connected with it in every way amounted to 27,000 individuals. Prior to this, however, the linen manufacture had become, as it still is, the staple trade of the district; and we may form an idea of the wealth and enterprise of those engaged in it from the fact, that in 1782 the merchants of Belfast, experiencing the want of a proper hall for the transaction of their business, at once subscribed a sum of 17,550*l.* for that purpose, the subscription list exhibiting very few contributions under from 100*l.* to 300*l.* The spinning of linen yarn by machinery, a trade which now rivals either of the other great branches of manufacture, was introduced into Ulster about 1806 or 1808; but so prosperous has it latterly become, that at present it employs perhaps more capital and labour than the cotton trade itself. There are ten factories of this description in the town and vicinity, driving upwards of 65,000 spindles, and several others are in course of erection. Damask and diaper of a superior quality are also manufactured in this district; indeed, Belfast linen fabrics, of all descriptions, have long maintained the highest character. In 1792 ship-building was first commenced here: previous to this time, the craft required were purchased and generally repaired in the Scotch or English ports; and when we find that, in 1785, the shipping of Belfast so supplied amounted only to 55 vessels, or 10,040 tons, the backwardness of early enterprise in this direction appears very remarkable. The first dock-yard employed only 10 workmen: the shipwrights, block-makers, sail-makers, rope-makers, and smiths now engaged in the constant building, rigging, and repairing of vessels, exceed 200. In 1811 the numbers employed were under 120; but there had already been built more than 40 vessels, the greater number above 200 tons. The largest vessel built in the port registers about 500 tons. Iron and brass founding have long been carried on with considerable activity; iron founding was actively prosecuted prior to 1641. Castings on the largest scale are now executed in the best manner; and much of the cotton and linen spinning machinery is driven by steam-engines constructed in the Lagan foundries. Belfast presents more of a manufacturing aspect than any other town in Ireland: there is, however, a lightness and elegance about the place that takes away much of the dark effect of its numerous chimneys and their black volumes of smoke; so that no town, perhaps, in the British islands more agreeably unites the appearances of industry and cheerfulness.

The private buildings are (with one or two exceptions) invariably of brick, and extremely regular; the general aspect of the chief streets is pleasing, and the neighbourhood of Donegal-square exhibits as good houses and as handsome street-views as almost any provincial town can boast of. The public buildings are more numerous than striking, and the want of steeples cannot fail to strike the traveller who is accustomed to the view of more antient towns. The parish church of St. Anne's, built in 1778, has a tower and coppered cupola of good proportions, although the upper part of the tower is framed of painted wood: it is capable of accommodating 1100 persons, and was erected at the expense of the late Marquis of Donegal. The chapel of ease, built in 1811 12, on the site of the old parish church in High-street, is a plain building with a beautiful portico. The portico was presented by the bishop of Down and Connor, who procured it at the taking down of Ballyscullen-house, the Irish Fonthill, built by Lord Bristol, the celebrated bishop of Derry in the last century; the building will contain 1200 persons. Another church, which has lately been erected in the south-western suburbs of the town, is a substantial edifice. The presbyterian places of worship are eleven in number, three of which, lately erected, possess architectural pretensions; but wanting spires, and being rather clumsily furnished with porticos, they contribute much less than could be desired to the ornament of the town. Of the eleven, four, including the three alluded to, are attended by the congregations professing the faith of the synod of Ulster. The number of persons who can be accommodated in them is between 5000 and 6000. Two others, which are attended by congregations professing Unitarian doctrines, are capable of containing from 2000 to 2500 persons. The orthodox Seceders have also two small chapels. The Covenanters, or reformed Presbyterians, have a good though not large meeting-house in the suburbs; the remainder are in the hands of independent congregations. The Roman Catholic places of worship within the town are two, but in the neighbourhood there are several others. Previous to the year 1763, the Roman Catholics of Belfast, although upwards of 550 in number, performed their worship in the open air. In that year their first chapel was erected, but soon becoming inadequate to their increasing numbers, another was required, and a large and handsome edifice has been erected in Donegal-street, with spacious schools and handsome residences for the clergy attached to it. These buildings are still insufficient to accommodate the rapidly-growing Roman Catholic population, which is now more than one-third of that of the whole town. The Methodists have four chapels, and the Society of Friends a meeting-house. The chief public edifice is the Commercial Buildings, an extensive pile, terminating one end of Donegal-street, to which it presents a handsome architectural front of stone. It was erected at a cost of about 20,000*l.*, and is the property of a company incorporated by act of parliament. Here is a remarkably good and well-regulated news-room, frequented by all the mercantile body of Belfast. Partially fronting this stands the old Exchange at the divergence of Donegal-street and North-street—a heavy and neglected but respectable square building of brick on a cut-stone basement. The exchange used to be held in the lower story, and the upper contains a very excellent assembly-room, much superior both in size and proportion to that in the building opposite: the house is the property of the Marquis of Donegal. The theatre, a shabby brick structure externally, but of very elegant though small proportions within, is much neglected. In its charitable institutions Belfast stands pre-eminent: the poor-house at the north end of Donegal-street fronting the Commercial buildings is a fine structure, with extensive wings and a handsome spire, built at an original cost of from 7000*l.* to 10,000*l.*, and supported at an expense of upwards of 2000*l.* per annum by the voluntary yearly subscriptions of the inhabitants and the produce of their former invested donations. In 1830 it contained 432 inmates, all of whom were fed, clothed, and the children educated, by the institution: it was incorporated under the title of the Belfast Incorporated Charitable Society, in anno 1774. The fever hospital opened in 1817 is capable of accommodating upwards of 200 patients: its expenditure in 1828 amounted to 1239*l.* 6*s.* 10*d.*, of which about one-half was granted at the county assizes, and the remainder was the produce of voluntary subscriptions and donations. A lying-in hospital, a female penitentiary, and a house of industry for the prevention of mendicity, are entirely supported by voluntary subscriptions. Carrickfergus being the assize town for the county, there is no jail at Belfast, but a large house of correction and a handsome police-office have been lately built. The barracks on the high ground in the north-western part of the town have been lately enlarged; they are capable of accommodating one regiment of foot, and a troop of horse or company of artillery. Belfast is well lighted: the gas-works which supply the town are the property of a company; they have been erected upwards of ten years. The supply of water, which is neither very copious nor good, is brought by open drains from the country a mile to the south, and is conducted by pipes from an open reservoir to the cisterns of the houses. As coal is the fuel of Belfast, a great amount of shipping is constantly employed between this port and Newcastle, Whitehaven, and other ports of England. The coal quay is highest up the river, then come those where the general merchantmen are moored, and beyond these, towards the bay, lie the ship-yards and ballast corporation graving-docks; lower down a new floating-dock is nearly completed, the property of an enterprizing individual, and still further improvements are contemplated between this and the pool of Garmoyle, a deep and secure station about three miles down the bay. A plan of these works, by Messrs. Walker and Bourges of London, has been adopted by the town authorities, and sanctioned by act of parliament, but as yet no step has been taken to carry it into execution. By the improvements however effected by the ballast corporation, ships drawing thirteen and fourteen feet of water can already lie at the quays, and the dry docks are sufficiently capacious to hold vessels of equal size during their repairs; a patent slip is also completed in one of the private dock-yards. The manufactures and commerce of Belfast have been so intimately connected with its rise as a town, that in its civil history we have already spoken of their introduction and progress. The export trade, which must in all Irish ports be commensurate in great measure with the prosperity of their several districts, has long been very considerable here. It consists chiefly of bacon, butter, pork, beef, corn, and raw hides; and, in manufactured articles, of linens, calicoes, muslins, cotton-yarn, linen-yarn, soap, tanned leather, candles, and starch. The chief imports are the raw material of the staple manufactures, and foreign luxuries; cotton, wool, flax-seed, flax, barilla, potash, groceries, wine, &c. The gross amount of customs including excise amounted in 1783 to 32,900*l.*; the customs exclusive of excise, for the year ending 5th January, 1834, were 228,945*l.* 6*s.* 10*d.* In 1682 the shipping of the port was 3307 tons: in 1827 the registered tonnage of the port was 21,557 tons. The value of the exports in 1810 was 2,904,520*l.* 19*s.*, being upwards of half a million more than in the year previous; the linens alone making more than two millions of this amount; the cotton-yarn exported in that year valued but 4942*l.* 6*s.*, and the cotton fabrics of all kinds did not exceed 35,000*l.* The items on a similar return for the last few years would be materially different, but the increase of the export trade we can only exhibit by a comparison of the tonnage as cleared outward. In 1831 there cleared outwards, coastwise, 155,416 tons, and for foreign ports 35,335. In 1834 the export tonnage was coastwise 174,894 tons, and for foreign ports 31,665. Inwards, there entered in 1831, of British tonnage 27,970, and of foreign 4276 tons; in the year 1833, of British tonnage 26,947, and of foreign 2537 tons; and in 1834, of British tonnage 30,733 tons, and of foreign 2395 tons. From a comparison of these items with similar returns for the port of Cork, it appears that Belfast, with fewer vessels, has in the foreign trade a greater amount of tonnage; but that, taking the amount of British and foreign shipping, their tonnage inwards for the last three years is very nearly equal. The post-office also indicates the activity of the commercial body of Belfast; the annual amount of postage being since 1832 nearly 10,000*l*. There are four banks in Belfast—two of them branches of the great metropolitan establishments, and two in the hands of private companies. There is also a savings bank, in which on the 30th November, 1830, there was lodged a sum of 40,679*l*. by 2423 depositors. The amount of stamps sold here averages 25,000*l*. per annum; the number of stamps for newspapers for the year 1823 was 335,000, and since then a considerable increase has taken place: there are now four newspapers and two small periodicals published in the town.

The increase of the population of Belfast has been extremely rapid within the last half century. In 1782 the town contained 6132 males and 6972 females, in all 13,105 inhabitants. In 1807 they were nearly doubled, being in all 22,095; in 1821 they were 37,277; and in 1831 their numbers in the town and suburbs stood thus—males 24,559; females 28,754, total 53,313; of whom there are 14,597 persons belonging to the Established Church; 18,715 Presbyterians; 18,268 Roman Catholics; 1111 Protestant dissenters, and 622 unclassed. This enumeration is exclusive of Ballymacarret, a portion of the borough which contains between four and five thousand inhabitants. The population of the borough itself by the last returns is 39,146, and its constituency 1700 voters.

Belfast has long had the reputation of possessing a well-educated community. In 1824 there were in the town and parish sixty-three schools of all kinds, educating 2152 males and 1666 females, exclusive of the Royal Academical Institution, which in 1825 had 462 males in its various classes. This great collegiate school was erected by public subscription, and incorporated by act of parliament in the year 1810. The original subscriptions amounted to 25,000*l*., including 5000*l*. received from India by the liberality and exertions of the Marquis of Hastings. The object of the undertaking was to procure a cheap home education for those who formerly frequented the colleges of Scotland; and since the synod of Ulster receives the general certificate of this institution as a qualification for ordination in their ministry, it may now be looked on as the great seminary of the Presbyterian church in Ireland. Its affairs are directed by a president, four vice-presidents, twenty managers, and eight visitors, chosen by the proprietary; and it enjoys an annual grant from parliament of 1500*l*. The chairs in the collegiate department are eight, embracing professorships of divinity, moral and natural philosophy, logic, mathematics, Greek, Latin, Hebrew, and, within the last year, a lectureship on Irish. The schools afford ample means of instruction on all subjects generally taught, and the faculty and managers have succeeded in forming a very respectable library and museum. There is no regularly endowed school here. The Lancasterian and the Brown-street institutions may be called free-schools: both have enjoyed the patronage of the Kildare-street association, but the Lancasterian school is now under the national board; nearly 2000 poor children are educated in these two establishments alone. Of the private schools, the Donegal-street academy is the most respectable; it has upwards of 150 scholars. A number of literary and scientific individuals in 1788 formed themselves into a body and took the name of the Society for Promoting Knowledge: they publish their transactions, and have a good library of upwards of 6000 volumes, together with a philosophical apparatus. A literary society more private, but comprising men of considerable eminence, was established in 1801. In 1821 another literary and scientific body was formed, called the Natural History Society; they have lately built a handsome house for their meetings, where they have a thriving library and a museum, which bids fair to be the next in Ireland to that of the Royal Dublin Society. In 1825 a mechanics' institute was erected, and a scientific school for artisans opened, where lectures are delivered on mechanics and chemistry. A botanical garden has been formed within the last four years, which is highly ornamental to the vicinity of the town, and already rich in a good assortment of plants. A patriotic institution, called the Irish Harp Society, for the cultivation of national music, has been long supported by voluntary subscription. The town expenses are levied by twelve commissioners and a committee of police, by virtue of an act passed in 1810. The paving, lighting, and cleansing of the streets, and general police of the town, are under their management. The amount of the police-tax for the first year of their superintendence was 3087*l*. 18*s*.; in 1834 it amounted to 8,058*l*. 2*s*. 2*d*. The sovereign has the control of the markets, the regulation of the cranes and weights, and is ex-officio a magistrate of the county of Antrim. A police magistrate, town-clerk, and seneschal of the manor are the other chief officers of the corporation. Since the year 1775, upwards of 100,000*l*. have been expended on a canal connecting this port with Lisburn and Loch Neagh, which is now the property of the Lagan Navigation Company. A plan for a railroad from the lime-quarries on the Cave-hill to the new docks is now being carried into effect: it is the property of private individuals, as well as a new bridge across the Lagan, about a quarter of a mile above the old long bridge which was built in 1682, and is now in a ruinous and unsafe condition. A lunatic asylum, capable of accommodating 106 patients, has been built by government in the vicinity of the town, at an expense of above 50,000*l*.: it is intended for the two counties of Down and Antrim. (See Spenser's *View*; Cox's *History of Ireland*; Dubourdieu's *Statistical Survey of the County of Antrim*; *Historical Collections relative to the Town of Belfast*, Belfast, 1817; Reid's *History of the Presbyterian Church in Ireland*; Hardy's *Northern Irish Tourist*; Inglis's *Ireland in* 1834; *Government Official Tables*; *Appendix to 2nd Report of Commissioners of Education in Ireland, and 4th Report, ditto*; *Ordnance Survey Map of Antrim*; *Calendar of Inquisitions for Ulster, &c. Communication from Ireland.*)

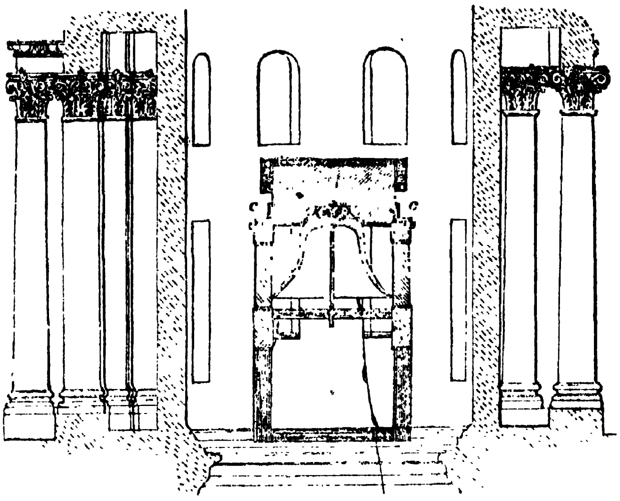
BELFRY, that part of a church-tower or steeple in which the bells are hung. The term is applied not only to that part of the tower, but also to the framing on which the bells are suspended. Belfry is probably derived from Belfredus, a low Latin term of the middle ages, a compound of *bell*, a Teutonic word, and *freid* (*friede*), peace. (Ducange, *Gloss.*) The old French word is *belfroit*. (Johnson's *Dict.* by Todd.) Ducange gives also the forms Beaufroy and Bellefroy. Belfry is synonymous with *Campanile* [see CAMPANILE], which, with the terms *clocaria* and *tristegum*, was used by the writers of the middle ages to express the same thing. According to some, the name Belfredus, which was applied to a wooden tower used in attacking fortified places, was afterwards given to any elevated tower in which a bell was hung. This statement, if correct, might lead us to infer that the Latin word *bellum* (war) was the first part of the compound Belfredus, and the second part possibly derived from the Latin, *fero*, to bear or carry away. The forms Berfredus and Verfredus also occur as the names of old military engines, and seem to lead to a different etymology.



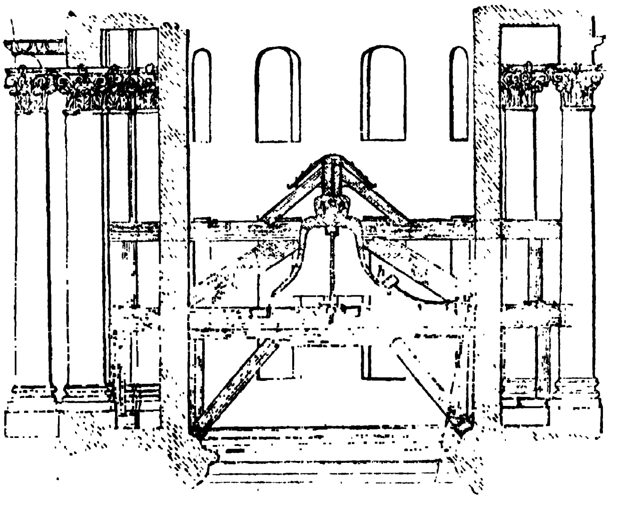
Plan of the belfry of St. Paul's.

A and B, lines of sections; *a*, *a*, beams.

In this plan and sections of the belfry of St. Paul's church are seen the construction of the timbers, showing their bearings independent of the masonry; that is, not fixed into the masonry. This construction may be taken as a good example of the method of hanging heavy bells in a belfry. In the two towers of St. Paul's Church four bells are hung; in the lower three and in the other one. The great bell shown in the section is hung over two others in the south tower; these latter are fixed, and not intended to be rung: the upper bell is hung on gudgeons or axles, and prepared for ringing, but from the confined space in which it is hung it cannot be rung, and only moves on its axle when struck by the hammer of the clock. In the construction of belfries the bearing of the timbers should always be on wooden plates.



Section of the belfry of St. Paul's on the line A, A. *c, c*, gudgeons, on which the bell swings.



Section of the belfry of St. Paul's on the line B, B. *h*, hammer.

0 1 2 3 4 5 10 20

Scale of Feet.

The term belfry was probably applied in the first instance to the wooden construction, which was made strong, in order to bear the weight of the bell or bells.

In constructing a belfry, the frame-work is placed either on stone corbels, or is made to bear on a 'recess formed in the wall.' (*Encyc. Method. Arch.*) This latter method is considered the best, because the vibration caused by the motion of the bells acts with less force on the masonry than it would if it were fixed in the masonry. It is also observed, that the higher the bells are placed in the tower, the more does the vibration, caused by ringing them, affect the masonry.

Village churches have belfries in their towers or steeples. In some instances, where there is a single bell, it is not placed in a tower, but suspended to a slight frame-work fixed between an arch constructed on the exterior top of the gable end of a church or chapel. [See BELL.]

BELGÆ, the general name given by Cæsar to the different tribes inhabiting the north of Gaul, between the sea on the west, the rivers Matrona (Marne) and Sequana (Seine) on the south, and the Rhenus (Rhine) on the east. But it is not well determined how far this name may be extended to the east; perhaps the Treviri, on the banks of the Moselle, were included. Cæsar remarks that the Matrona and Sequana separate the Belgæ from the Galli, who were to the south of them. He says also, in general and vague terms, that the Belgæ extend to the Lower Rhine, and lie towards the north and the rising sun. He also (*De Bell. Gall.* v. 24) uses the term Belgium to express the country of the Belgæ. The Belgæ, were according to Cæsar's testimony, of German origin, though perhaps somewhat mingled with the Celtic inhabitants of Gaul, and distinguished by their warlike character, which Cæsar attributes partly to their origin and partly to their being strangers to luxury and refinement. The Bellovaci [see BEAUVAIS] were the most warlike and numerous Belgic tribe in the time of Cæsar. (*De Bell. Gall.* ii. 4.) The Remi, whose capital was Durocortorum (Rheims), were the nearest Belgic tribe to the Galli on that side. The rest of the tribes are mentioned by Cæsar (ii. 4): among them we find one name, the Atrebates, the same as that of a tribe in Britain. The Belgæ may be described generally as occupying, in the time of Cæsar, the French departments of Nord, Pas de Calais, Somme, Seine Inférieure, Oise, and Aisne; with a part of modern Belgium.

When Cæsar invaded South Britain, he found that part of the island occupied by Belgæ, that is, by tribes of German origin, who had passed over from the opposite shores of Gaul, and obliged the original inhabitants to retreat into the interior of the country. (*De Bell. Gall.* v. 12.) But as he had no intercourse with the original inhabitants, it is impossible to say how far the Belgæ had penetrated inland; and later historians have given us no account of this circumstance. We learn only that the whole southern coast from Suffolk to Devonshire was occupied by Belgic tribes. The Cantii were settled in Kent, the Trinobantes to the north of the Thames, the Regni in Sussex and the Atrebatii in Berkshire. To the west of them the Belgæ, properly so called, occupied Hampshire and Wiltshire, and extended through Somersetshire to the Bristol Channel; their capital was Venta Belgarum, Winchester. Farther to the west, the Durotriges were found in Dorsetshire, and their neighbours, the Damnonii, in Devonshire.

The Belgæ in Britain, conformably to the character of their brethren in Gaul, made a stout resistance to Cæsar. But about a century afterwards they were compelled to submit to the yoke, which the Romans had already in the time of Cæsar imposed on their kinsmen in Gaul. The name Belgica occurs as the name of a division of Gaul as late as Diocletian's time. Under the emperors it was governed by an officer with the title of Procurator, or Legatus.

BELGIUM. The origin of this kingdom as a separate state dates from the year 1830. In the month of August of that year, the revolution began at Brussels which severed the Belgian provinces from the crown of Holland. On the 4th of October following, the provisional government at Brussels proclaimed the independence of Belgium; and on the 26th of December it was announced to the congress assembled in that city, that the allied powers of Europe had recognised the permanent separation of the Belgian provinces from the kingdom of the Netherlands. [See NETHERLANDS.]

In February, 1831, the congress elected the Duke of Nemours to the throne of the new kingdom; but his father, Louis Philippe, king of the French, having refused the crown on the part of his son, a new election became necessary, and the choice of the national representatives then fell upon Prince Leopold of Saxe Cobourg, widower of the Princess Charlotte of England. This prince having accepted the crown, took the oaths prescribed, and ascended the throne in the presence of the congress on the 22nd of July, 1831.

The courts of Great Britain, Austria, France, Prussia, and Russia, which had already acknowledged the independence of Belgium, concluded a treaty with King Leopold, which was signed in London on the 15th of November, 1831, in which treaty the boundaries of the new kingdom were defined, and the peaceable possession of his territories was guaranteed to King Leopold.

According to the terms of this treaty, the Belgian territory is composed of the provinces of South Brabant, Liége, Namur, Hainault, West Flanders, East Flanders, Antwerp, Limbourg, with the exception of some districts particularly described, and a part of the Grand Duchy of Luxembourg.

The exceptions in the province of Limbourg just mentioned are :—' 1st. On the right bank of the Meuse; the old

Dutch *enclaves* upon the said bank, united to those districts of the said province upon the same bank which did not belong to the States General in 1790; in suchwise that the whole of that part of the present province of Limbourg, situated upon the right bank of the Meuse, and comprised between that river on the west, the frontier of the Prussian territory on the east, the present frontier of the province of Liége on the south, and Dutch Guelderland on the north, shall henceforth belong to his majesty the king of the Netherlands, either to be held by him in his character of Grand Duke of Luxembourg, or in order to be united to Holland.

'2. On the left bank of the Meuse:—commencing from the southernmost point of the Dutch province of North Brabant, there shall be drawn a line, which shall terminate on the Meuse below *Wessem*, between that place and *Stevensweardt*, at the point where the present *Arrondissement* of *Ruremond* and *Maestricht* meet, on the left bank of the Meuse; in such manner that *Bergerot*, *Stamproy*, *Neer Itteren*, *Itervoord* and *Thorne*, with their districts, as well as all the other places situated to the north of this line, shall form part of the Dutch territory.

'The old Dutch *enclaves* in the province of Limbourg, upon the left bank of the Meuse, shall belong to Belgium, with the exception of the town of Maestricht, which together with a radius of territory, extending 1200 toises from the outer glacis of the fortress on the said bank of this river, shall continue to be possessed in full sovereignty by his majesty, the king of the Netherlands.'

The exceptions thus described in Limbourg were assigned to the king of the Netherlands in return for cessions to be made by him to Belgium, of a part of the Grand Duchy of Luxembourg, which are thus described in the treaty —

'Commencing from the frontier of France between *Rodange*, which shall remain to the Grand Duchy of Luxembourg, and *Athus*, which shall belong to Belgium, there shall be drawn a line, which leaving to Belgium the road from *Arlon* to *Longwy*, the town of *Arlon* with its district, and the road from *Arlon* to *Bastogne*, shall pass between *Mesancy*, which shall be on the Belgian territory and *Clemancy*, which shall remain to the Grand Duchy of Luxembourg, terminating at *Steinfort*, which place shall also remain to the Grand Duchy. From *Steinfort* this line shall be continued in the direction of *Eischen*, *Hecbus*, *Guïrsch*, *Grende*, *Nothomb*, *Parette*, and *Perlé*, as far as *Martelange*: *Hecbus*, *Guïrsch*, *Grende*, *Nothomb*, and *Parette*, being to belong to Belgium, and *Eischen*, *Oberpalen*, *Perlé*, and *Martelange*, to the Grand Duchy. From *Martelange* the said line shall follow the course of the *Sure*, the water-way (*thalweg*) of which river shall serve as the limit between the two states, as far as opposite to *Tintange*, from whence it shall be continued, as directly as possible, towards the present frontier of the *Arrondissement* of *Dickirch*, and shall pass between *Surret*, *Harlange*, and *Tarchamps*, which places shall be left to the Grand Duchy of Luxembourg; and *Honville*, *Livarchamp*, and *Loutremange*, which places shall form part of the Belgian territory. Then having, in the vicinity of *Doncols* and *Soulez*, which shall remain to the Grand Duchy, reached the present boundary of the *Arrondissement* of *Dickirch*, the line in question shall follow the said boundary to the frontier of the Prussian territory. All the territories, towns, fortresses, and places situated to the west of this line shall belong to Belgium; and all the territories, towns, fortresses, and places situated to the east of this line shall continue to belong to the Grand Duchy of Luxembourg.'

Boundaries.—The kingdom, as thus described, is bounded on the north by the Dutch part of the province of Limbourg, and by North Brabant, and Zeeland; on the north-west by the North Sea; on the south-west and south by the Departments of the Pas de Calais, Nord, Ardennes, and Moselle, in France; and on the east by the Dutch portion of the Grand Duchy of Luxembourg, and the Grand Duchy of the Lower Rhine.

Area and Population.—This territory lies between 49° 31′ and 51° 27′ N. lat., and between 2° 37′ and 6° E. long. Its greatest length from south-east to north-west is 173 English miles, and its greatest breadth, measured in the direction S.S.W. from the most northern part of the province of Antwerp, to the most southern point of the province of Hainault, 112 miles. Its form approaches to that of a triangle, the base of which is the French frontier, and its area is computed at 3,252,058 hectares, equal to 8,044,323 English acres, or 12569 English square miles. It is thus very nearly one-eighth of the area of Great Britain. The population, according to the census of 1830, amounted to 4,064,235 distributed through the different provinces as follows:—

	Inhabitants of		
	Towns.	Rural Districts.	Total.
South Brabant . .	160,784	395,362	556,146
Liége	95,375	274,562	369,937
Namur	34,219	178,506	212,725
Hainault	128,841	476,116	604,957
West Flanders . . .	164,945	436,759	601,704
East Flanders . . .	179,423	554,515	733,938
Antwerp	127,281	227,693	354,974
Limbourg	67,671	270,032	337,703
Luxembourg . . .	39,579	252,572	292,151
Total . .	998,118	3,066,117	4,064,235

The above numbers exhibit a population of 323 for every square mile. The coast of Belgium, which is low and flat, is not above forty miles in length.

Mountains, &c.—The general character of Belgium is that of a low and level country. The high land of Belgium is connected with the Vosges, the remote branches of which stretch into the provinces of Luxembourg and Liége. From the neighbourhood of the sources of the Saone and the Moselle another branch runs north and divides the waters of the Moselle from those of the Maese. Extending into the southern part of Luxembourg, it gradually declines as it approaches the banks of the Semoy and the Sure. The high ground, which is interrupted by these rivers, rises again to a greater elevation on their northern borders, encloses the valley of the Ourthe, and terminates between the Ourthe and the Roer, in the mountains of Hohe-veen, a wild tract situated to the north of Malmedy. The greatest height of the mountains in the tract described is 2265 feet above the sea, an elevation greater than that of the Ardennes by 317 feet.

Some high ground, which likewise forms part of the Ardennes, runs in a north direction between Cambray and Mezieres, and extends into the provinces of Namur and Hainault, and South Brabant, enclosing the valley of the Sambre, and separating the waters of the Maese from those of the Scheldt. The northern termination of this high ground is about Vilvoorde, between Brussels and Malines. [See Ardennes, Hainault, Lie'ge, Luxembourg, and Namur.]

The coal-fields of Belgium are in the provinces of Limbourg, Liége, Namur, and Hainault. The Limbourg coal-field is in the environs of Kerkraede, about twelve miles east of Maestricht, whence it extends into the Prussian territory. The greatest length of this field from north to south is about three miles and a half, and its greatest breadth from east to west not quite two miles; the surface contains about five and a half square miles, one-half of which is in the Prussian territory. In Liége there are two coal-fields. The largest of these is in the immediate vicinity of the town of Liége, and on both sides of the Maese or Meuse river. The field extends six and a quarter miles N.N.E. from Liége to Oupeye, and seven and a half miles in the contrary direction to Yvot. Jemeppe, three and three-quarter miles N.W. from Liége, is the termination of the bed in that direction, and Jupille, two and a half miles east from Liége, is its limit in the opposite direction. Its extreme length may therefore be stated as thirteen and three quarter miles, and its extreme breadth six and a quarter miles. This field is worked in many places: the principal pits are at Jemeppe, St. Nicholas, Glain, Ans, St. Marguerite St. Walburg, Herstal, and Oupeye: these places are on the left bank of the Maese. On the right bank there are pits at Wandre, Yvot, Seraing, Ougrée, La Chartreuse, Jupille and Cheratte.

The second coal-field of Liége is that of Battice and Clermont: its length eleven and a quarter miles E.S.E. from Housse to Clermont, and its greatest breadth six and a quarter miles E.N.E. from Fleron to Battice. The places here mentioned are those at which the principal workings are carried on.

Hainault contains three extensive coal-fields. One is situated to the west of Mons, and extends nearly twelve and a half miles from Quievrain on the west to Eugies on the south of Mons, and eight and three-quarter miles from Baisieux on the W.S.W. to Jemmapes on the west of Mons. The second coal-field on the east of Mons extends ten and five-eighth miles from Saint Denis on the west to Chapelle les Herlaimont on the east; and fifteen miles from Ville-sur-Haine on the N.W. to Thuin on the S.E: thirty-four pits are wrought in this field, and 142 in that west of Mons.

The third coal-field in this province is the most extensive, and it stretches into the adjoining province of Namur. The town of Charleroi stands in the centre of this coal district, which extends in Hainault from Fontaine-l'Evêque on the west to the boundary line on the east, a distance of thirteen and one-eighth miles; and from Fleurus on the north to Jamioulx on the south, about ten miles. The part of this field which is in Namur is in the form of a triangle, the base of which extends from Falisotte on the south to Velaine on the north, a distance of nearly three and three-quarter miles. The vertex of this triangle is between Mozet and Maizaret, so that it is nearly fifteen miles. The whole coal district of Hainault traverses the middle part of the province from E.N.E. to W.S.W. in a belt about five miles in breadth.

The soil, which in each of the provinces consists almost entirely of clay and sand, has for the most part been rendered fertile by a due admixture of both these elements. Agricultural industry is carried to a great extent in the kingdom, and the cultivators have availed themselves of every advantage within their reach for increasing their productions. The extent of cultivation in each province will be seen in the following table, taken from the *Annuaire de l'Observatoire de Bruxelles pour l'an* 1835, compiled by Mons. Quetelet, from official documents:

PROVINCES.	Cultivated Land. Hectares.	Uncultivated Land. Hectares.	Land occupied with buildings. Hectares.	Roads and Canals. Hectares.	Total in Hectares.	Total in English Acres of Cultivated Land.
Limbourg . .	310,514	139,410	1,480	15,283	466,687	767,070
Liege	237,579	40,850	915	9,648	288,992	586,671
Namur . . .	278,397	58,959	926	9,401	347,683	687,610
Luxembourg . .	463,423	167,760	1,462	17 571	650 216	1,144,655
Hainault . . .	356,258	3,455	2,962	9,794	372,469	879,957
Brabant (South) .	316,833	1,356	1,768	8,419	328,426	782,701
East Flanders .	264 988	1,310	4,422	11,641	282,361	654,520
West Flanders .	296,915	8,690	2,015	8,965	316 585	733,380
Antwerp . . .	197,303	72,651	1,719	12,157	283,830	487,339
Totals . .	2,722,260	494,441	17,669	102,879	3,337,249	6,723,933

It appears from this statement, that about nine-elevenths of the whole surface of the country are under cultivation. Even of the uncultivated land, which amounts to no more than 15 per cent. of the whole area, a considerable part is occupied by forests, and is therefore productive. A part of the uncultivated surface is also occupied by towns, roads, and canals. In England only six-tenths of the land has been brought under cultivation.

Rivers, Canals, &c.—The principal rivers of Belgium are the Maese, or Meuse, and the Scheldt. The first, which has its source in the department of Haute Marne in France, enters Belgium about a mile from Givet, in the province of Namur. It flows first to the north as far as Hastière-par-dela, about seventeen and a half miles south of Namur; it then turns to the north-east, and afterwards resuming its north course, flows to Namur, where its direction is again changed to E.N.E. The Maese quits the province of Namur at Huy, and continues the same course to Liége, when it again takes a more northerly direction to Maestricht in Limbourg, which province it enters at Navagne, and quits the Belgian territory between Wessem and Stevenswaardt.

In its course, as here described, the Maese is increased by the waters of the Sambre, which joins its left bank at Namur, and those of the Houyon on the left, and the Méhaigne on the right at Huy. It is joined by the Ourthe on the right, and the Légie on the left at Liége, and by the Berwinne on the right at Navagne; by the Geer or Jaar on the left, and the Geule on the left at Maestricht, and just before it quits the Belgian territory it is joined by the Geleen near Stevenswaardt. The Maese is navigable through the whole of its course in Belgium; below Liége the passage is rendered difficult by shifting sand-banks. It is crossed by a stone bridge of six arches at Dinant, and by another of nine arches at Namur. At Liége a stone bridge unites the two parts of the town which stand on opposite sides of the river.

The Scheldt has likewise its source in France, about one and a quarter mile south-east of Casteiet, in the department of L'Aisne. It enters Belgium immediately after its confluence with the Scarpe, about twelve miles south of Tournay in Hainault. Its course is N.N.W. to Tournay, which town it divides into two parts; it then turns more to the north, and at the end of seven and a half miles, at Hérinnes, forms the boundary-line between Hainault and East Flanders; it leaves the former province at Escamaffles, and becomes the common boundary of West and East Flanders to the north-eastern extremity of the commune of Berchem, when its course is altered to N.N.E., and it passes through East Flanders to Ghent. At this town the course of the river turns east, in which direction it continues to Dendermond, where the Scheldt again becomes the boundary of two provinces, and divides East Flanders from Antwerp. Its course again changes at Dendermond to N.N.E., and at Antwerp it turns to N.W., in which direction it flows until it quits the Belgian territory between Zeeland and North Brabant, and joins the æstuary of the West Scheldt at the point of its junction with the East Scheldt opposite the south-eastern end of the island of Zuid-Beveland.

In its course through Belgium the Scheldt receives the waters of the Lys on the left at Ghent, and those of the Durme on the left at Thielrode, two leagues N.E. of Dendermond; it is afterwards joined on the right by the Dender at Dendermond, and by the Rupel nearly opposite Rupelmond, seven and a half miles S.S.W. of Antwerp.

The Scheldt is navigable throughout its whole course in Belgium, and indeed as far as Cambray in France, 195 miles from the sea. The navigation is rendered somewhat difficult for large vessels at the mouths of the river by sand-banks. At Antwerp the mean depth of the river at low-water is 32 feet, and its width 480 yards: the rise of the tide at this city is 16 feet. The water is brackish as high up as Fort Lillo. Opposite Antwerp it is quite fresh, but too muddy to drink. In spring-tides the water flows at the rate of three miles an hour, but only at half that rate during neap tides: the tide flows as high as Ghent, 100 miles from the mouth of the river. From the nature of the country, there being no hills to break the force of the winds, they have a very sensible effect in increasing or diminishing the tides, causing a difference in this respect of three or four feet in the height of the water in different conditions of the weather.

In addition to the two principal rivers and those of their affluents which have been described, Belgium is watered by other streams, some of which require notice, but as descriptions of them will necessarily be given in connexion with the provinces in which they occur, it does not appear necessary to do more than mention them here.

The Ourthe rises in the Ardennes from two sources, which are more than twelve and a half miles apart. The two branches join at Houffalize in Luxembourg, and become navigable at Laroche, in Liége—having previously been augmented by two smaller streams, the Aine and the Logne. It joins the Maese at the town of Liége, as already mentioned. The Vesdre has its source in the Grand Duchy of the Lower Rhine, and enters Liége near the town of Limbourg. Flowing to the west it falls into the Ourthe at Chenée, near to the town of Liége. The Amblève also rises in the Prussian territory, enters Belgium near Stavelot, in the province of Liége, and joins the Ourthe near to Comblain-au-Pont in the same province. The Mehaign rises in Namur, and discharges itself into the Maese on its right bank at Statte, near to Huy in Liége. The Geer or Jaar rises in the district of Waremme in Liége, and falls into the Maese at Maestricht.

The Sambre has its source in France, in the Forest of La Haye Cartigny, in the department de l'Aisne. It enters Hainault at Erquelinnes, runs in a direction E.N.E. to Namur, which province it enters a little below D'Aiseau, not far from Moignelée, and falls into the Maese, as already described, at Namur.

Belgium is not so well provided as Holland with canals. The canal of Bois-le-duc commences at Maestricht, passes through the communes of Neerharen, Reckheim, Borsheim, Mechelen, Eysden, Neeroeteren, Oppiter, Brée, Beek, Bockholt, Weert, and Nederwert, at which last-named place it quits the province of Limbourg, and enters the Dutch territory of North Brabant. The length of the canal from Maestricht to Nederwert is about forty-two English miles; it has two stationary bridges, fourteen drawbridges, seven sluices, and sixteen reservoirs. Its supply of water is drawn from the Maese. The canal from Bruges to Ghent communicates at Bruges with the canals of Damme and of Ostend. The Bruges and Ghent canal was constructed in the beginning of the seventeenth century, and is adapted for the passage of vessels of 80 to 100 tons burthen; its principal feeder is the River Lys, with which it is connected by means of a sluice at Ghent. Ghent has communication with the sea by means of a canal, whose course is N.N.E. from Ghent through Sas-de-Gand, where it is joined to the canal of Neuzen, which communicates with the æstuary of the East Scheldt. This canal was projected for the purpose of draining the province of East Flanders, and was undertaken by the general government; but in consideration of its depth and width being increased so as to render it navigable, the regency of Ghent consented to bear a part of the expense, and their town by this means was rendered a sea-port. Vessels drawing eighteen feet water easily pass through this canal; after the discharge of their cargo, it is usual for them to descend the Scheldt to Antwerp. This improvement was not completed until 1828. A similar project is said to have been once contemplated by Napoleon.

The Louvain canal begins at that town, where it is fed by the river Dyle, follows a north-west direction, and enters the province of Antwerp a short distance from Malines, passing under the walls of that town, and again joins the river Dyle at its confluence with the Senne, at a place called Senne-gal near Rumpst. The Louvain canal is sixty feet wide, and eleven feet deep. The boats employed upon it are sixty feet long, twelve feet wide, and draw from two to three feet water. When the wind is fair they sail up or down, otherwise they are drawn by horses. This canal was constructed in 1750, at the expense of the city of Louvain. Its cost was about 160,000*l.*, and to reimburse the city for its outlay the government granted to it a duty on beer and on butter, as well as a toll upon vessels, the produce of which was sufficient to pay for the canal in forty-eight years. In fifteen years from its completion, the land in the vicinity of the canal was doubled in value, by the means which it afforded for procuring manure and for conveying agricultural produce to market.

The Brussels canal which is supplied by the water of the river Senne at Brussels, proceeds to the north by Vilvoorde, passes from South Brabant to the province of Antwerp, a little below Thisselt, crosses the commune of Willebrock, and ends in the river Rupel opposite Boom. This canal, begun in 1550, was not opened for navigation until 1591. The object of its construction was to facilitate the communication between Brussels and Antwerp; its cost was 130,000*l*, a large sum for those days, and it is still considered one of the finest works in Belgium.

The canal from Mons to Condé is supplied by the river Haine, which gives its name to the province of Hainault. It proceeds in a strait line to the west, enters France near Valenciennes, and falls into the Scheldt at Condé, after a course of about twenty-four miles, rather more than four miles of which are in the French territory. It has seven sluices, five in Hainault and two in France. It is crossed at different places by fourteen drawbridges, three of them in France. The mean depth of water in this canal is six feet, and its mean breadth at the water-line fifty-five feet. This canal was undertaken by the French government in 1807, and was finished in 1814. Some judgment may be formed of its utility from the number of boats which have passed upon it in each year, from 1816 to 1828, the last year of which any account is given: their numbers were

	Boats.		Boats.		Boats.
1816 . .	3287	1821 . .	3998	1826 . .	5430
1817 . .	3460	1822 . .	3942	1827 . .	5440
1818 . .	3673	1823 . .	4052	1828 . .	6009
1819 . .	3739	1824 . .	4881		
1820 . .	3940	1825 . .	5370		

The principal use of this canal is to convey coals from Hainault to France. In 1828, 3603 boats, loaded with 374,158 tons of coals, passed along it.*

A rail-road between Brussels and Malines, through Vilvoorde, was finished and opened for use with much ceremony on the 5th of May, 1835. The carriages on this railroad are propelled by means of locomotive steam-engines, the whole of which have been imported from England, where they were constructed under the direction of Mr. Stephenson, the engineer of the Manchester and Liverpool railway. It is intended that branches of the Brussels railway shall proceed from Malines to Dendermond and Antwerp: the lines for these roads are already surveyed and marked out.

Natural productions.—It has been seen how very considerable a portion of the kingdom of Belgium has been brought under cultivation. This has been effected by a long course of industry on the part of the inhabitants. Naturally, the soil is unproductive, consisting in some parts of sand, and in other parts of clay. Separately, these would yield no return to the husbandman, but by a due admixture of both, and the addition of manure, the soil has been made highly productive. The most general objects of cultivation are wheat, rye, barley, oats, meslin, buck-wheat, hemp, flax, madder, hops, chicory, colza (*Brassica oleracea arvensis*), and the artificial grasses clover, trefoil, lucerne, and sainfoin. The ruta baga, or Swedish turnip, turnips, carrots, parsnips, and potatoes, are raised to a considerable amount by field culture. Tobacco is grown in some situations, and every where fruits of the kinds grown in England are objects of careful cultivation.

In addition to the materials commonly used in England for manure, the Belgian farmers employ considerable quantities of turf-ashes, which are prepared in Holland, and conveyed by inland navigation to the different provinces of Belgium. They also collect with the utmost care the drainings of dung-heaps, and other fertilizing liquids, in which rape-cake is dissolved, in the proportion of six pounds of rape-cake to five gallons of liquor. Turf-ashes are found to be an excellent dressing for clover land, in the proportion of eighteen or twenty bushels to the English acre. By means of their crops of clover and other artificial grasses, a large number of cattle is bred and fatted, and these again are serviceable in providing manure for the land.

The following table of the number of horned cattle, horses, and sheep, which were found in each province in the year 1825, is taken from a collection of statistical documents published by the Netherlands government in 1829. As this enumeration was made previous to the separation of Belgium from the northern provinces, the returns comprehend the whole of Limbourg and Luxembourg. We have not been able to find any similar statement compiled since the revolution of 1830.

	Horned Cattle.	Horses.	Sheep.
South Brabant . . .	93,007	50,543	32,725
Liége	70,800	21,403	96,344
East Flanders . . .	118,024	27,549	34,707
West Flanders . .	127,713	23,752	38,604
Hainault	98,999	51,812	95,916
Namur	55,571	21,922	113,657
Antwerp	85,532	30,500	28,408
Limbourg	101,637	24,769	126,913
Luxembourg . . .	131,651	37,195	206,860
Totals . .	882,934	289,445	774,134

Returns have been made from some of the provinces to the year 1829; but they do not exhibit any great difference from the numbers of 1825 given above, which may therefore be taken as representing pretty nearly the numbers actually existing at this time (1835). The graziers in Belgium do not appear to have paid much attention to the improvement of the breed of their cattle or sheep. The breeders of horses have taken some trouble in this respect, and a considerable number of draft-horses are every year sold for exportation. Pigs are also bred, and the sale of those animals to the northern provinces formed an important branch of trade before the separation of Belgium from Holland.

It is customary to plant trees on the borders of fields, and round the villages. There are few woods, except in Liége and Luxembourg; these two provinces, with Namur, include a portion of the antient forest of Ardennes. Among the timber-trees are the oak, chestnut, horse-chestnut, beech, elm, horn-beam, ash, walnut, fir, and different descriptions of poplars.

Metals and minerals.—The mineral productions of Belgium are iron, calamine, coals, and building stone. The men employed in extracting coal, are now between 14,000 and 15,000, and the different mines are furnished with 115 steam-engines for pumping out water, and for raising the coal to the surface.

Population.—The number of inhabitants in each pro vince at the last census has already been given from official authority. From the same source we derive the following particulars of the *movement* of the population in the year 1833:—

PROVINCES.	Number of Births.						Number of Marriages.	Number of Divorces.	Number of Deaths.					
	In Towns.			In Villages, &c.					In Towns.			In Villages, &c.		
	Males.	Females.	Total.	Males.	Females.	Total.			Males.	Females.	Total.	Males.	Females.	Total.
South Brabant	3,151	2,959	6,110	7,180	7,005	14,185	3,932	2	3,316	3,296	6,612	5,316	5,355	10,671
Limbourg	796	782	1,578	4,576	4,336	8,912	2,140	„	628	616	1,244	3,088	3,241	6,329
Liége	1,772	1,624	3,396	4,887	4,517	9,404	2,557	3	1,928	1,876	3,804	3,641	3,558	7,199
East Flanders	3,161	3,062	6,223	8,859	8,566	17,425	4,426	1	2,777	2,920	5,697	7,186	7,571	14,757
West Flanders	2,813	2,664	5,477	7,698	7,247	14,945	3,880	2	2,438	2,516	4,954	6,366	6,276	12,642
Hainault	2,237	1,870	4,107	8,881	7,100	15,981	4,024	1	1,922	1,964	3,886	6,023	6,068	12,091
Namur	606	535	1,141	3,226	2,944	6,170	1,328	1	456	429	885	2,012	1,863	3,875
Antwerp	2,024	1,984	4,008	3,793	3,696	7,489	2,288	„	1,935	1,797	3,732	2,963	2,839	5,802
Luxembourg	624	558	1,182	5,281	4,778	10,059	2,176	„	373	420	793	3,161	3,072	6,233
Totals	17,184	16,038	33,222	54,381	50,189	104,570	26,771	10	15,773	15,834	31,607	39,736	39,813	79,599

The number of births, marriages, and deaths, proportionally with the population, and the average number of children to each marriage in the different provinces, are as follows:—

PROVINCES.	No. of Inhabitants for			Average number of children to each marriage.
	One Birth.	One Marriage.	One Death.	
Limbourg	32	139	44	4·37
Liége	31	155	47	4·72
Namur	33	154	56	4·57
Luxembourg	28	128	43	4·67
Hainault	30	140	48	4·51
South Brabant	29	137	41	4·68
East Flanders	30	173	43	5·19
West Flanders	30	169	39	4·90
Antwerp	32	149	46	4·48
Mean of all the Provinces	30	144	43	4·72

Religion.—The great bulk of the inhabitants of the kingdom profess the Roman Catholic religion. The following table embraces every province excepting Limbourg, the returns for which are wanting:—

Provinces.	Catholics.	Protestants.	Jews.
Liége	369,044	810	22
Namur	211,963	612	61
Luxembourg	300,155	106	92
Hainault	603,197	1,683	36
South Brabant	551,987	3,146	580
East Flanders	732,129	1,647	128
West Flanders	600,060	1,598	4
Antwerp	351,818	2,898	151

The people of all religious persuasions enjoy the most perfect freedom in every thing connected with the expression of their opinions and the modes of worship which they may adopt. The incomes of the ministers of each denomination of religionists are derived from the public treasury: the expense of the whole in the year 1834 was as under.

Catholics	3,352,900 francs,	equal to	£134,116
Protestants	65,000 „	„	2,600
Jews	10,000 „	„	400
	3,427,900 fr.		£137,116

The Catholics are under the spiritual charge of the Archbishop of Malines and of five bishops, viz., of Bruges, Ghent, Liége, Namur, and Tournay. The salary of the archbishop is 100,420 francs, equal to 4016*l.* per annum. The salaries of the bishops vary from 56,300 francs, the lowest, to 77,300 francs, the highest, or from 2252*l.* to 3092*l.* per annum. Out of these revenues they have to pay a very large proportion for the support of vicars-general and canons, as well as a fixed sum of 800 francs each for seminaries of education, leaving net incomes of 21,000 francs or 840*l.* per annum to the archbishop, and of 14,700 francs or 588*l.* per annum to each of the bishops, the difference in their gross incomes being rendered necessary by the different amount of expenses to which each is liable.

The officiating clergy in connexion with the Catholic Church are distributed through the provinces as follows:—

Provinces.	Curés, 1st class.	Curés, 2nd class.	Inferior clergy.
Antwerp	10	11	362
South Brabant	12	17	625
West Flanders	19	17	431
East Flanders	21	15	498
Hainault	6	26	506
Liége	6	18	436
Limbourg	5	17	606
Luxembourg	1	29	652
Namur	1	15	306
Total	81	165	4422

The salaries paid out of the public treasury are—

To curés of the 1st class 975 florins, equal to £82 per ann.
To curés of the 2nd class 670 „ „ 55 „

To the inferior clergy the allowances vary from 100 florins to 375 florins (from 8 guineas to 30 guineas) per annum.

The allowances made to the Protestant clergymen vary from 200 to 2000 florins for each (from 16*l.* 16*s.* to 168*l.*); the greater number receive about 1000 florins (84*l.*) per ann.

The sum of 10,000 francs contributed for the support of the Jewish faith is thus distributed:—

To the high priest	2,400 francs, or	£96	per ann.
Two officiating priests	2,500 „	100	„
Secretary	400 „	16	„
Expenses of synagogues, cemetery, &c.	4,700 „	188	„
	10,000 fr.	£400	

Very recently the chambers have granted the sum of 12,000 francs, to encourage religious establishments in the principal towns of the kingdom, for the celebration of worship according to the rites of the Church of England.

Education.—Belgium contains three universities, at Ghent, Liége, and Louvain, in which are classes for medicine, law, moral philosophy, and physical and mathematical sciences. The number of students in 1832 were:—

	Medicine.	Law.	Other sciences.	Total.
University of Ghent	141	151	—	292
„ Liége	97	147	108	352
„ Louvain	129	125	141	395
Together	367	423	249	1039

Bruges, Brussels, Namur, and Tournay each contain a public school (Athénée), in which the usual branches of literary education are taught. These schools, in 1832, gave instruction to 876 scholars, viz.:—

Bruges	131
Brussels	181
Namur	240
Tournay	324
	876

Descriptions of these schools will be found under the names of the different localities in which they are situated.

In addition to the establishments already mentioned, a great number of elementary schools (Ecoles Primaires) are opened in the different provinces. The number of these schools, and of the scholars attending them, in 1832, are here given.

PROVINCES.	Number of Schools.	Number of Scholars.			Population of Provinces.
		Males	Females.	Total.	
Antwerp .	341	15,105	11,801	26,906	354,974
South Brabant	592	21,104	17,586	38,690	556,146
West Flanders	547	19,949	16,997	36,946	601,704
East Flanders	875	30,710	24,284	54,994	733,938
Hainault . .	888	35,671	29,048	64,719	604,957
Liége . . .	492	17,912	11,977	29,889	369,937
Limbourg .	404	16,973	12,419	29,392	337,703
Luxembourg .	831	24,049	19,201	43,250	292,151
Namur . .	416	17,061	13,575	30,636	212,725
Total . .	5,386	198,534	156,888	355,422	4,064,235

The sums contributed in 1834 out of the public treasury for the purposes of education amounted to 743,200 francs or 29,728*l*. About one-half of this sum (384,900 francs) was applied to the support of the three universities, and 242,000 francs were assigned to the elementary schools; the remainder was divided among the 'Athénées.'

Manufactures.—The manufacturing industry of Belgium has very much declined in modern times as compared with the extent to which this was carried on in the fourteenth century. Much earlier than this, under the Romans, several Flemish cities were celebrated for producing woollen-cloths. Extensive manufactures of woollens and linens were carried on in the time of Charlemagne, chiefly in Liége. The making of thread-lace originated in Flanders, and, up to a recent period, Brussels and Mechlin have carried on a large trade in that article: in the former city more than 12,000 persons were once employed for its production. Early in the fourteenth century Louvain contained 4000 looms for woollens; and Brussels and Antwerp had together as large a number. At a date not quite so remote Ghent employed between 30,000 and 40,000 looms for the weaving of woollen and linen goods. It is mentioned that the weavers of that city once mustered 16,000 men in arms under the banners of their respective trades. The city of Antwerp, at the time of its capture in 1585 by the Duke of Parma, governor of the Spanish Netherlands, contained a large population employed in manufacturing woollen and silk goods; but at that time, through the tyranny of its conquerors, the artisans were driven away, and many of them took refuge in England, where their example and instruction were of great use for the improvement of the English silk manufacture. The woollen manufacture is now prosecuted, but to a much smaller extent than formerly, at Verviers, Charleroy, Tournay, Mons, and some other towns. Cotton-spinning and weaving are carried on in Brussels and some towns in Limbourg. Liége and Maestricht contain large tanneries. At Antwerp, Ostend, and Ghent, there are some sugar-refineries, cutlery is made at Namur, and fire-arms in considerable quantities at Liege: breweries are likewise numerous and extensive in most of the principal towns throughout the kingdom. Earthenware is made of good quality in several places, and the manufacture of nails has been carried on for a very long period in the provinces of Liége and Hainault. These provinces used formerly to supply a large quantity of nails to foreign markets, but this branch of their trade has greatly fallen off since the great reduction in the price of iron and in the charges of manufacture in England, which have not been accompanied by corresponding reductions in Belgium.

Trade.—The external trade of Belgium has suffered greatly from the revolution by which it has been separated from the northern provinces of the Netherlands. Holland retains all the colonies which belonged to the kingdom of the United Netherlands, and monopolizes the trade with them. Antwerp, the principal mercantile part of the new kingdom, which in 1829 received 995 ships, of 145,881 tons burthen, received in 1831 only 382 ships of 49,368 tons burthen. The proportions of these ships which were employed in the trade with England were, in 1829, 212 vessels of 35,306 tons burthen, and in 1831, 169 ships of 21,670 tons burthen: the trade with America has fallen off much more considerably, having been 113 ships of 30,316 tons burthen in 1829, and only 20 ships of 5057 tons in 1831.

Many ship-owners who, up to the time of the revolution, were established in Belgium, then transferred themselves to Holland, and put their ships under the Dutch flag, in order that they might not be excluded from participating in the colonial trade in which they had previously been employed.

The articles which Belgium supplies to England are oak-bark, flax, madder, clover-seed, spelter, and sheeps' wool. in return for which we send various kinds of East India and West India produce, tobacco, and cotton wool, besides British and Irish produce, and manufactures to the value of nearly one million annually, consisting principally of brass and copper manufactures, cotton manufactures and yarn, hardware, earthenware, salt, sheeps' wool, woollen and worsted yarn, and woollen manufactures. A great part of the cotton-yarn and cloths, and the tobacco, which are exported hence to Belgium, are not intended for consumption there, but are smuggled across the French frontier by means of dogs trained for the purpose, by being pampered in France and half starved and otherwise ill-used in Belgium.

Government.—Belgium is called a limited constitutional monarchy. The succession is limited to the direct male line, to the perpetual exclusion of females and their descendants. In default of a male heir, the king, with the consent of the legislative chambers, may nominate his successor, and in further default of such nomination the throne is declared vacant.

The legislative power is vested in the king and two chambers—the Senate and House of Representatives. The members of these chambers are elected by citizens paying not less than twenty florins (about thirty-five shillings) annually of direct taxes. The members are elected for certain divisions or places, but by one of the articles of the constitution it is expressly declared that the deputies and senators shall consider themselves as representing the whole nation, and not simply the provinces or divisions from which they are sent. The number of deputies is fixed with reference to the amount of population, so that the proportion of one deputy for 40,000 inhabitants must in no case be exceeded. Each representative must be a Belgian by birth or naturalization, in the full enjoyment of all civil and political rights, of at least twenty-five years of age, and having his permanent residence within the kingdom. The members of the representative chamber are elected for four years, renewable one half every two years. The king has the power to dissolve the chambers, either simultaneously or separately. The decree or act of dissolution must contain a provision convoking the electors within forty days, and the new chambers in two months.

The Senate is composed of exactly one-half the number of members in the Chamber of Representatives, and the senators are elected by the same citizens who elect to that chamber. The senators are elected for eight years; they are renewed one-half every four years; but in case of dissolution, of course the election must comprise the whole number of which the Senate is composed. The qualifications requisite for a senator are, that he must be a Belgian by birth or naturalization, in full possession of all political and civil rights, domiciled within the kingdom, at least forty years of age, and paying at least 1000 florins of direct taxes (84*l*. sterling). In those provinces where the list of citizens who possess this last-mentioned qualification does not reach the proportion of one in 6000 of the population, that list is enlarged by the admission into it of the names of those citizens who pay the greatest amount of direct taxes, so that the list shall always contain at least one person who is eligible to the Senate for every 6000 inhabitants of the province.

The members of the House of Representatives are paid for their services at the rate of 200 florins monthly (16*l*. 16*s*.) during the continuance of the session. The senators do not receive any pay. The presumptive heir to the throne is of right a senator at the age of eighteen, but he has not any voice in the proceedings until twenty-five years of age. All proceedings of the Senate during the time when the Chamber of Representatives is not sitting are without force.

Each branch of the legislature may originate laws, with this exception, that every law relating to the receipt or expenditure of money for public purposes must be first voted by the Chamber of Representatives. The ordinary sittings of both chambers are held in public; but each chamber, on the demand of the president or of ten members, may form itself into a secret committee, and when so formed it rests with the majority of the chamber to decide whether or not the sittings shall continue to be secret. If a member of either of the legislative houses accepts an office of emolument under the crown, he immediately vacates his seat until re-elected. The president and vice-presidents of each chamber are nominated by its members at the beginning of each session.

The chambers assemble as of right every year on the second Tuesday in November, unless they shall have been previously called together by the king. The session must last at least forty days; its prorogation is pronounced by the king.

The number of citizens registered as electors in the lists, as they stood in each province in April, 1833, and the number of representatives and senators chosen in each province, are as under:—

PROVINCES.	Number of Electors.			Number of Inhabitants to each Elector.	Number of Members.	
	In Towns.	In Country.	Total.		Representatives.	Senate.
Antwerp . . .	1,572	2,872	4,444	78	9	4
South Brabant . .	2,785	3,104	5,889	93	14	7
West Flanders . .	2,217	4,391	6,608	92	15	8
East Flanders . . .	2,605	7,001	9,606	74	18	9
Hainault . . .	2,047	4,280	6,327	98	15	7
Liége	1,191	2,535	3,726	101	9	5
Limbourg . . .	960	2,399	3,359	96	9	4
Luxembourg . . .	580	4,354	4,934	62	8	4
Namur	878	2,082	2,960	73	5	3
Total . . .	14,835	33,018	47,853	85	102	51

The person of the king is declared sacred. His ministers are responsible for the acts of the government. No act of the king can have any legal effect until countersigned by one of his ministers, who by that means becomes responsible.

The king appoints and dismisses his ministers at pleasure. He nominates to civil and military offices. He promulgates the rules and orders necessary to insure the execution of laws, but has no power to dispense with nor to suspend the execution of the laws. The king commands the land and sea forces, declares war, and makes treaties of peace, of alliance and of commerce, communicating the same to the legislative chambers as speedily as the public safety and interest permit. Commercial treaties have no legal effect until they have been assented to by the chambers. No cession, exchange, or addition to the national territory can be made except by means of a law passed in conjunction with the chambers.

The king is declared of age at eighteen years. Before he can exercise the functions of royalty, he must take the following oath, in presence of both legislative chambers:—'I swear to observe the constitution and the laws of the Belgian people, to maintain the independence of the nation and the integrity of its territory.'

If at the death of the king his successor should be a minor, the two chambers meet together in order to appoint a regent. The regency cannot be intrusted to more than one person, who, before he can enter upon his office, must take the oath just recited.

In case the throne should become vacant, the chambers deliberating together shall appoint a provisional regent; both chambers are then dissolved, and must meet again at latest in two months, when the new chambers, sitting in deliberation together, are to supply the vacancy.

No man can be appointed a minister of state who is not a Belgian by birth or naturalization. No member of the royal family can be a minister. The ministers have the right of attending and speaking in either of the chambers, but can only vote in one, provided they have been elected members thereof. The chambers may require the presence of ministers. In no case can the king screen a minister from responsibility.

The king has the right of coining money, and of conferring titles of nobility, but without granting thereby any peculiar privileges, such being repudiated by a fundamental article of the constitution, which declares all Belgians to be equal in the eye of the law, without any distinction of orders.

Judges receive their appointments directly from the king, and hold them for life, so that they cannot be superseded but by their own consent, or by a judgment pronounced in open court, and for reasons publicly declared on that occasion. The trial by jury is established for all criminal and political charges, and for offences of the press.

No taxes can be levied by the state unless previously established by a law passed by the chambers, and all such taxes must be voted annually, the laws by which they are established expiring at the end of a year. The contingent of the army is voted under the same limitation.

Personal liberty, and liberty of conscience, are guaranteed to every citizen by the constitution in the fullest sense; all are amenable to the laws, and all are placed equally under their protection.

Military Forces.—The Civic or National Guard of the kingdom is raised for the purposes of defending the constitutional rights of the monarchy and the people, of maintaining order, upholding the laws and preserving the territory of Belgium from invasion. This guard is unequally divided into three corps (*bans*). The entire number of the three is 590,907 men, raised in the different provinces in the following proportions:—

Brabant . .	27 legions	. 82,166	men.
Antwerp . .	20 ,,	. 48,533	,,
East Flanders	38 ,,	. 108,206	,,
West Flanders	40 ,,	. 82,663	,,
Hainault . .	35 ,,	. 89,834	,,
Namur . .	16 ,,	. 31,542	,,
Liége . .	25 ,,	. 53,771	,,
Limbourg .	24 ,,	. 49,793	,,
Luxembourg .	32 ,,	. 44,399	,,
Total	257 legions	590,907	men.

The first corps, or *ban*, includes only 89,089 men. The government is authorised to give a more active and efficient character (*mobiliser*) to the whole, or any part of this corps; hitherto only a portion has been called into active service.

The more regular or standing army consists of the following number of men:—

12 regiments of infantry of the line, each 1900 .	22,800
3 ,, foot chasseurs ,, 1368 .	4,104
2 ,, horse chasseurs ,, 1462 .	2,924
2 ,, lancers . ,, 1462 .	2,924
1 regiment of cuirassiers	1,500
1 ,, 'guides'	867
1 ,, gensd'armes . . .	1,156
Artillery, battering train, sappers and miners, &c.	5,557
Total	41,832

The number of horses belonging to this army is 14,064

Finances.—The total revenue of Belgium for the year 1834, as stated in the 'Budget Général' laid before the Chambers by the government, amounted to 84,130,624 francs (3,365,225*l.*). This revenue was derived from the following principal sources, viz.:—

	Francs.
Direct taxes.—viz., land-tax, licenses for carrying on trades (patents), and personal contributions	31,410,624
Customs duties.—On importations, exportations, transit, and tonnage duties .	7,600,000
Excise.—Salt, wine, spirits, beer, sugar, &c.	17,580,000
Sundries.—Stamps, duty on registrations, and on successions	17,375,000
Posts.—Carriage of letters, specie, &c. .	2,340,000
National domains.—Rents, produce of canal dues, &c.	2,400,000
Sundries.—Tolls on roads, passports, seizures, &c.	5,425,000
	84,130,624

The expenses of the year were just about equal to the receipts, and may be classed as follows:—

	Francs.
Interest on the public debt . . .	10,864,394
Civil list, expenses of the chambers, salaries and expenses of officers engaged in administering justice, prisons, and police, and public charitable institutions . .	8,734,505
Diplomatic services and expenses . .	691,200
Marine	1,001,201
Army	40,000,000
Provincial government, public instruction, religious worship, expenses of civic guard, public works, advancement of scientific objects, &c.	10,482,244
Salaries of various public functionaries, expenses of national domains, of ports, customs, excise, &c.	11,315,897
Overpayments returned, and the like .	1,033,000
Francs	84,122,441
or	£3,364,897

The expenditure for the year 1833 exceeded the sum here stated by 14,000,000 of francs, or 560,000*l.*, the difference having been caused by a reduction of the army; but as the peculiar position of the kingdom with regard to Holland obliges the government still to keep on foot a very considerable force, and to maintain a numerous staff ready organized, the Belgian government is not in so favourable a position for reducing its debt, and for relieving its subjects from the pressure of taxation as it would be, if a better understanding could be effected with the Dutch government, which is equally burthened with expenses occasioned by armaments, and has its resources equally crippled by the want of a free intercourse between the two kingdoms.

BELGOROD, or **BJELGOROD**, once the capital of a province, but now the chief town of a circle in the province of Kursk, in the south-eastern part of Russia in Europe, is nearly four miles and a half in circuit, and is situated close to the sources of the Severnoi-Donetz, which falls into the Don. It is traversed by the small river Ziolka or Wessolka, and lies about ninety miles south of Kursk. This town was originally built in the reign of Fedor Ivanovitsh, in the year 1597, when its site was a chalk hill, close to where it now stands, whence it was called the 'white town:' but it was afterwards removed about a mile lower down to its present situation, in a valley between two hills. It is divided into the Old and New towns, and has three suburbs: the old town is surrounded by a rampart and ditch, but the new by palisades only. It is the seat of an archbishopric, has two monastic establishments, ten churches of stone and three of wood, and three charitable asylums. There are several manufactories in the town, particularly for refining and pressing wax, and for spinning and weaving; and it carries on a considerable trade in hemp, bristles, honey, wax, leather, soap, &c. Three fairs, to which a swarm of dealers from the south of Russia resort, are held here in the course of the year. The environs are extremely productive, chiefly in fruit, for which the district is much celebrated: whole fields of water-melons are of common occurrence, and the climate from its mildness is very favourable to vegetable growth. Belgorod contains about 1600 houses and 8700 inhabitants, and lies in 50° 53′ N. lat., and 36° 2′ E. long.

BELGRADE, by the Servians called Alba-Græca and Greek-Weissenburgh, by the Turks Bilgrad and Darol Dshishad, or the House of the Holy War, and by the Hungarians Nándor Fejervar, is a city in the northern part of Turkish Servia, about two miles south-east of Semlin, at the junction of the Save with the Danube, and on the right bank of both these rivers. 'These two majestic streams, blending their waters at this point,' says Frickel (*Pedestrian Journey*, 1827-1829), 'expand into what might be mistaken for the ocean itself, and the spot where the Save pours itself into the queen of European rivers is clearly perceptible from the diversity of the tints.'

Belgrade is the Sigindunum of Ptolemy, the Singidunum of the *Itinerarium* of Antoninus, and the Singedum of Procopius (Περὶ κτισμάτων, lib. iv.). The city was founded by the Romans, afterwards totally destroyed by the Barbarians, and rebuilt by the Emperor Justinian, who fortified it strongly. He also built a new fort, called Octavum, at a little distance from the city. The city was opposite to Tauranum (now Semlin) in Pannonia. A vestige of its former name is still retained by a holm in the Save called Singin, not far from the present site of the town.

The Belgrade of modern times was founded by Dushan, king of Servia, in the year 1372, and is divided into four quarters, the most conspicuous of which is the Citadel, which forms the centre of the town, and is constructed on a steep acclivity, about a hundred feet high, jutting out into the Danube; it presents a picturesque object from the opposite city of Semlin. The space between the banks of the river and the ramparts is traversed by a wall of earth in a decayed state, which is mounted with iron cannon in as unserviceable a condition as the carriages on which they rest. The access through this wall is between two stone columns, the evident remains of a substantial wall. A paved way leads thence to the citadel, the entrance to which is through a gate in a massive lofty wall, which runs along the edge of the rocky acclivity, and constitutes the chief part of its fortifications. The first objects that meet the eye on entering the fortress are the arsenal and magazines, erected by the Austrians during their possession of Belgrade in the beginning of the last century. These once splendid edifices are fast mouldering away; but not more rapidly, perhaps, than the ramparts, bastions, and massive towers which lie around them. The ascent from these buildings leads to a lofty quadrangle, consisting of two stories, and built partly of wood and partly of stucco. The roofs jut out considerably beyond the walls, and serve as a protection to the galleries which range beneath them; these are ascended by broad flights of wooden steps. This edifice, though it is the residence of a pasha of three tails, is a very sink of every species of filth, and has been the theatre of the most brutal atrocities which the Turk could devise against his Christian captive. This was the spot, for instance, where Rhigas the Greek was sawed into pieces, limb by limb, and where six-and-thirty Servians, in the year 1815, were empaled, in violation of the pledge that their lives should be spared; in many cases these wretched victims endured this excruciating torture for seven whole days. The garrison is of the most miserable description, for it is the pasha's interest to maintain as few troops as possible, and at as low a cost as he finds practicable. The main-wall is furnished with gabions, between which iron cannon are mounted: this wall as well as the principal ditch are in tolerable condition, but in other respects the citadel is in a very indifferent state. In all, there are three ditches to it, the one within the other, besides mines and bomb-proof casemates. The principal mosque in the town, which is a handsome building, with the great tower Benoviso rising from its interior, stands within the citadel.

The flames, bombardments, and other havoc of war have left little standing of the former town of Belgrade. The modern erections constitute the three remaining quarters, which are divided into the Water Town, the Rascian Town, and the Palanka. Crossing a glacis of four hundred paces, and passing through three gates along a very gentle descent, we reach the main street, running to the north-west, with several lateral lanes of houses. These form part of what is called the Citadel, and are united by a small footway with the Water Town, which occupies a confined space on the edge of the banks of the Save, close to its confluence with the Danube, and is the best built quarter of the town. It contains the palace of the Greek bishop, fourteen mosques, the fish and other markets, an arsenal, spacious barracks, and the custom-house. The northern and eastern sides of it are protected by a ruinous wall of earth, eight feet in height, the two outlets through which are defended by wooden towers. It is much more strongly fortified towards the south, in which direction it is encircled by a wall of earth, intermixed occasionally with masonry and brickwork; this wall is ornamented by a very solid gate, opening upon the road that leads to Constantinople. The line of defence on this side is also provided with watch-towers. More immediately to the south-west of the Citadel, as well as west of it, runs a long range of suburbs, lying scattered like a village, beyond which is the Rascian, or Servian Town, likewise denominated the Town of the Save; it is defended by walls and palisades, is the principal residence of the merchants and dealers, and stands close to the Palanka, a further line of suburbs, which surround the citadel on the south and east. These two quarters contain nearly a hundred mosques and churches, two handsome besesteins or bazaars, twelve baths, and other public edifices, among which we may mention the palace of the prince of Servia and a spacious school. The Servians, also, have several well-built dwellings, and a neat coffee-house in this part of the town.

But in speaking of Belgrade and its streets we must warn the reader, that they are not composed of lines of modern houses, but, in general, of rows of wooden stalls, in which the owner arranges his merchandise with no small degree of taste, and parades his customers, surrounded by his workmen intent upon their several tasks. The barber and coffee-vendor alone carry on their trade in closed shops, and enjoy the luxury of glazed windows. To any traveller fresh from western Europe, the motley population of this town is a novel and highly-interesting scene; the tailor and the gunsmith the baker and the victualler, by their white turbans, sallow sombre faces, and haughty mien, will be instantly recognized as Turks; the red cap, sharp eye, and insinuating manners of the merchant and dealer betray their Greek extraction; and the merry countenance of the shopkeeper smirks beneath the round close bonnet of the native Servian. Independently of the Turkish garrison, which seldom exceeds five or six thousand men, the inhabitants of Belgrade do not at present amount to more than twenty thousand; but even in its present state they carry on so considerable a trade, both internal and external, that the customs produce 15,000*l.* per annum and upwards. The extensive manufactures for which it was formerly celebrated are now reduced to a few establishments, in which woollens, carpets, leather, ironware, and arms, are made. In other hands than those of its Turkish masters it would rapidly rise into importance: at present, attractive as its outward appearance may be at a distance, no spot can be more disgusting on close examination, for there is not a street or public place in which every rule of cleanliness does not seem to be almost studiously violated. The surrounding country is diversified with gentle hills, and richly wooded; and the public thoroughfares are embellished with many traces of Turkish piety—the inclosed well and fountain, and the caravanserai.

Belgrade has been the theatre of many important events. It first fell under the Hungarian sceptre in 1086, when King Solomon wrested it from the Greek empire. Three years after the fall of Constantinople, in 1456, it was besieged by the Turks, but rescued from their hands by the gallant Hunyady, voyvode of Transylvania, who drove them back with great loss. The second attempt, made by them in 1522, was met by a resolute but fruitless resistance: the Turkish sultan, Solyman, succeeded in planting the crescent upon its walls, and it was possessed by his successors until the year 1688, when the elector of Bavaria, at the head of the Austrian forces, laid siege to it, and expelled the Turks from the place. Two years afterwards, Belgrade again fell into their hands, under Amurath II.; and in 1693 the Imperialists re-appeared upon the spot, but were baffled in their endeavour to regain it. In 1717 the celebrated Prince Eugene, leading the Austrians in his second campaign against Turkey, met his enemy under the walls of Belgrade on the 16th of August, destroyed nearly the whole of his army, entered Belgrade, and reduced the greater portion of Servia under the imperial sway. The extensive scale upon which the Austrians now enlarged and completed the fortifications of the place cost them at least 400,000*l.* (4,000,000 of guldens); and their possession of it was confirmed to them by the sultan in the treaty of Passarovitz on the 21st of July following. In 1739, about which time Belgrade attained the height of its commercial splendour, the war which Austria unadvisedly undertook against Turkey, in conjunction with Russia, by whom she was suddenly and faithlessly abandoned, terminated in the signal defeat of her forces at Krotska on the Danube, the abandonment of her conquests in Servia, and the restitution of Belgrade to the sultan by the treaty which he dictated to her generals in a moment of panic. In conformity with this treaty, all the new fortifications were razed at the emperor's expense. The disastrous opening of the Austrian campaign against the Turks in 1788, was counterbalanced in the succeeding year by Marshal Loudon's brilliant successes against them, and the re-capture of Belgrade; but the weakness of Austria forced her to restore it, with her other Servian acquisitions, at the peace of Szistova in 1791. It has remained ever since in the occupation of Turkey, except for a short time during the Servian insurrection, which broke out under the conduct of Czerny George (the Black George) in 1804. The intrepid patriot laid siege to the town, and expelled the Ottomans from it in 1806; he retained possession of Belgrade until the year 1813, when he was at length obliged to abandon it to them, but not before the inhabitants had set fire to and destroyed the suburbs, and blown up the fortifications. The destruction thus brought upon the town has since been partially repaired, and its defences have been restored to some extent; but the happier consequence of the spirit with which the Servians then asserted their independence, has been that they have gained it; and that, under the conditions of the treaty of 1815, by which Turkey recognizes their free institutions, Belgrade is the only spot in the country where the sultan is allowed to maintain a garrison.

Belgrade is in 44° 50′ N. lat., and 20° 39′ E. long. Above the town are three long, narrow islands in the Danube, divided from the land by a natural canal, which forms a safe harbour; and opposite the Rascian Town, near the mouth of the Save, lies another islet, called the Gipsies' Island.

BELIAL, usually Bélial, more correctly Belíal, Βελίαλ, בְּלִיַּעַל (pronounce B'liyángal), is one of the few compound words in the Hebrew language. It is formed of בְּלִי *nothingness, not*, and יַעַל *utility, advantage.* Hence Belial means a worthless fellow. A man of Belial, or a son of Belial, a daughter of Belial, mean in the Bible a wicked person. Belial, if emphatically used, or κατ' ἐξοχην in preference, means the worst of spirits. Thus in the passage, 'What concord hath Christ with Belial?' 2 Cor. vi. 15. Compare Milton's *Paradise Regained*, book ii. v. 147-152:—

> 'So spake the old serpent doubting, and from all
> With clamor was assur'd their utmost aid
> At his command; when from amidst them rose
> *Belial*, the dissolutest spirit that fell,
> The sensuallest, and, after Asmodai,
> The fleshliest incubus, and thus . . . . .

Others have endeavoured to derive the word from עלל *to act*, so that Belial should be *a not acting one*, an *idle fellow*: others from עלה *to rise*, so that Belial should be one who should finally be cut down, *not to rise again.* The Talmudists in Sanhedrin, fol. 111, derive the word from עול or על *yoke.* According to them, Belial is *without a yoke, without restraint and discipline.* Compare Pfeiffer's *Opera. Ultraject.*, 1704, tom. i. p. 503.

BELIDOR, BERNARD FOREST DE, was born in Catalonia, in 1697 or 1698. He was the son of a French officer, and his father and mother dying very shortly after his birth, he was adopted by another officer, who brought him to France. The brother of his protector was an officer of engineers, and under his care, Belidor, who had studied the elements of mathematics with attention, saw the sieges of Bouchain and Quesnoy before he was sixteen years old. He was shortly afterwards an assistant of Cassini and Lahire, in their continuation of the measure of the degree; and was afterwards appointed professor at the school of artillery of La Fere, founded by the Regent Duke of Orleans. He was afterwards raised to the rank of captain, much to the dissatisfaction of his new comrades, who could not bear to see a professor in uniform: but, says our account, a reprimand and a few days' imprisonment reconciled them to the innovation.

Before 1742 M. Belidor lost his place of professor, on account of his discovering that some of the powder in the charge then used was useless, not being set on fire before the ball had left the gun. The originality of the discovery was contested; and it is also said, that his dismissal was owing to his having communicated it to Cardinal Fleury, instead of the head of his department. In 1742 Belidor was aide-de-camp to General de Segur in Bavaria and Bohemia, and was made prisoner at Lintz. He was soon exchanged, and was made a lieutenant-colonel. He served under the Prince de Conti, in the campaigns of 1744 and 1746, the first in Italy, the second in Flanders. In the first he distinguished himself by blowing up in six hours, and in the face of the enemy, a château which it was important to destroy, and which by ordinary methods it would have taken several days to dismantle. In the second, he reduced the town of Charleroi, by entrusting as a secret to a clergyman in its neighbourhood his intention to serve that place in the same way. This communication soon got wind, and, with some covered carts which were seen on their way to some coal-pits in the neighbourhood, so frightened the inhabitants, that they forced the governor to surrender. For this service he was made colonel; he was also member of the academy in 1756, inspector of arsenals in 1758, and brigadier and inspector-general of mines in 1759. He died at Paris in 1761.

The works of M. Belidor are even now in credit among military engineers, and he advanced every branch of their science, particularly mining. The common notion on this subject was, that the effect of a mine took place mostly in the direction of least resistance, and that the effect of a very powerful charge would be to blow upwards the cylinder of earth immediately above it. The experiments of M. Belidor showed that the effect is nearly equal in all directions in which there can be any effect at all, that is, that lateral as well as superincumbent earth is blown away, leaving a sort of hemispherical void. Thus he showed how to effect a lateral entrance into the counter-mine of a besieged place.

The works of Belidor are as follows: 1725, *Nouveau Cours de Mathématique*, which went through a large number of editions: 1729, *La Science des Ingénieurs:* 1731, *Bombardier Français*, containing some of the earliest tables of the relation between the elevation and the range: 1737 and 1739, the two first volumes of the *Architecture Hydraulique*, a work which has not yet been superseded by any other of equal extent and merit; the two latter volumes appeared in 1750 and 1753: 1755, *Dictionnaire portatif de l'Ingénieur:* 1764, posthumous work, *Œuvres diverses, &c.*, relating to fortification and mining. (This is the only work we ever met with which has a wrong date in its own title-page, it being there 1754, in which year M. Belidor was living.) The work on fortification, which has been sometimes attributed to M. Belidor, in 4 vols. 4to., was never published, as far as we can find, but was left incomplete among his papers. There are also memoirs of M. Belidor, in the *History of the Academy of Sciences*, from 1737 to 1756.

BELIGRAD (a word signifying, in the Bulgaro-Slavonic dialect, the White Town), an important town of Albania, now generally known under the name of Berát. Mr. Hughes conjectures, though with great diffidence, that it is on the site of the antient Antipatria, a city taken by Apustius, lieutenant of the Consul P. Sulpicius, in the war between the Romans and Philip King of Macedonia; and he urges, in support of his conjecture, the description of Antipatria given by Livy, who says that it was in a narrow pass, and that it inspired confidence into its inhabitants by its size and the strength of its walls and site. (Livy, lib. xxxi. 27.) In the Byzantine writers, Beligrád appears under the name of Balágrada, or Balagrita, and is still sometimes called Arnaout Belgrade (or the Albanian Belgrade), to distinguish it from the town of Belgrade on the Danube. In the latter part of the thirteenth century it was in the hands of the Greek emperors, the dominion of the Albanians not having yet extended to this part of the country. In the fourteenth century it was conquered by the Albanians; and it was probably from them that it was taken by Amurath, or Murad II., Emperor of the Turks, who reigned in the early part of the fifteenth century. George Kastrióti (better known by the Turkish name of Iskénder Beg, or Scanderbeg) attempted to retake it. He encamped against it with a force of 8000 horse and 7000 foot, among whom was a strong body of Italians, sent by Alfonso King of Naples, 'men skilful in the assaulting of walles and holdes.' Kastrióti was defeated, and lost nearly all his Neapolitan auxiliaries. Beligrád has been ever since in the hands of the Turks. [See BERAT.] (Hughes's *Travels in Greece and Albania*; Leake's *Researches in Greece.*)

BELISA'RIUS (Βελισάριος), a general of the lower empire, under Justinian I. The precise year and place of his birth are uncertain, but it is most probable that he was born near the city of Sardica (a place on the Isker), in the beginning of the sixth century. Of his parentage nothing is known.

He makes his first appearance in history as one of the body guard of Justinian, at that time heir to the throne. The *Byzantine* empire was then, about A.D. 525, at war with Persia, and Belisarius exercised his first command in an expedition into Persarmenia. On his return he was nominated to the government of Dara, an important fortified town in the northern part of Mesopotamia, near the frontier of Armenia, where he took into his service, as secretary, the historian Procopius, whose writings are our principal authority for the events of his life. In 527 Justinian came to the throne, and by his orders Belisarius proceeded to build a fortress at Mindon, near Dara. The Persians commanded him to desist, and on his refusal marched against him, defeated his troops, and razed the works. We may conclude, however, that no blame attached to him, as shortly after we find him appointed general of the East, with the conduct of the Persian war. In the year 530 he defeated the enemy in the decisive battle of Dara; and in the following year he repulsed, by a series of skilful manœuvres, a considerable army, which had invaded Syria on the side of the desert, and advanced so far as to threaten Antioch. Being, however, compelled by his troops to give battle, contrary to his own inclination, at Callinicum, a town at the junction of the rivers Bilecha and Euphrates, he sustained a defeat, but succeeded in preventing the Persians from deriving any advantage from their victory.

Shortly afterwards peace was concluded, and Belisarius returned to Constantinople. During his residence there he married Antonina, and succeeded in suppressing the sedition called νίκα (nika), which had nearly subverted the throne of Justinian. In June, 533, he sailed as commander of an expedition for the recovery of those provinces of Africa which had anciently belonged to the empire, but were now possessed by the Vandals. He landed (Procop, περὶ κτισμάτων) in September at Caput Vada, now Capoudia, about 150 miles south of Carthage, and advanced without opposition to Decimum, about eight miles (seventy stadia) from Carthage. Having defeated the enemy at Decimum, he immediately entered the capital, while Gelimer, the Vandal king, fled towards the deserts of Numidia, where he occupied himself in assembling an army at Bulla, four days' journey from Carthage. He also endeavoured to organise a conspiracy among the Carthaginians and the Huns in the Byzantine service, which was discovered and suppressed by Belisarius. The Vandals having advanced to Tricameron, within twenty miles of Carthage, were defeated in a decisive battle, and Gelimer fled to the inaccessible mountain of Pappua, near Hippo Regius, where he was blockaded, and some time afterwards obliged to surrender. On his return to Carthage Belisarius sent detachments which reduced Sardinia and Corsica, and the Balearic Isles; he likewise recovered the fortress of Lilybæum, in Sicily, which the Vandals had received as the dowry of a Gothic Princess, and which, on their downfall, had been resumed by the Goths. He proceeded for some time in the settlement of the province, but finding that suspicions of his fidelity had been excited in the mind of Justinian, he determined to disarm them by a speedy return. He committed the government to the eunuch Solomon, and set sail for Constantinople. On his arrival he was honoured with a triumph, an honour which, since the reign of Tiberius, had been reserved for the emperors alone; a medal was struck, with the inscription 'Belisarius, the glory of the Romans,' and in the ensuing year, 535, he was invested with the dignity of sole consul.

In that year he sailed with a very insufficient force for the conquest of Italy from the Goths: he landed at Catania in Sicily, and having rapidly reduced that island, fixed his head-quarters at Syracuse. While at Syracuse he received news of a rebellion in Africa. He immediately set out thither with only one ship and 100 guards, and had nearly succeeded in restoring subordination, when he was recalled to Sicily by a mutiny in the army there. Some negotiations which had been in progress between the Goths and Justinian having been broken off, Belisarius crossed over to Italy; his advance was only delayed by the resistance of Naples, which he took after a siege of twenty days, and at the end of the year 536 he entered Rome, which was evacuated by the Gothic garrison on his approach. Early in 537 he was besieged there by Vitiges, the Gothic king, who had recently been raised to the throne on the deposition and murder of Theodatus, and now advanced from Ravenna with an army of 150,000 men. In the course of the siege Belisarius deposed the Pope Sylverius, whom he had detected in a treasonable correspondence with the enemy: by some writers he is accused of having himself forged the letters, in compliance with the orders of the Empress Theodora, who wished to remove Sylverius from the pontificate, but the charge appears to be unsupported by proof. Before the end of the siege he incurred much obloquy by his precipitate execution of Constantine, an officer of rank and reputation, who in an altercation with him respecting the restoration of some plunder, forgot himself so far as to draw his sword on his general; he was immediately put to death by the command of Belisarius, who is supposed to have acted rather in furtherance of the private revenge of Antonina, who accompanied him in his expeditions, than from any seasonable zeal for the vindication of discipline.

Early in 538 the siege, which had been carried on for more than a year with great vigour, was raised, and Vitiges retired to Ravenna. Belisarius then proceeded in the reduction of the provinces of Italy, though much impeded by the factious opposition of his officers and by an invasion of the Franks; but in the beginning of the year 539, Narses, the leader of the faction, was recalled, and the Franks retreated after a short inroad. At length Ravenna was invested, but, when its surrender could no longer have been delayed, an embassy which had been sent by Vitiges to Constantinople returned with a treaty of partition, which left to him the title of king, and the provinces north of the Po. This treaty Belisarius refused, on his own responsibility, to execute, and the Goths, driven to despair, offered him their support if he would assume the title of Emperor of the West. By affecting compliance he gained possession of Ravenna, and the surrender of that city was followed by the submission of almost the whole of Italy. In the beginning of 540 he was recalled to Constantinople, whither he immediately repaired

In the spring of 541 he was sent to conduct the war which had broken out with Persia, and after an indecisive campaign returned to Constantinople. In 542 he was again appointed to the supreme command in the Persian war, and at the close of the campaign again recalled, and on his arrival degraded from all his employments. During the campaign a rumour had prevailed of the death of Justinian, and Belisarius had used language unfavourable to the succession of Theodora. His treasures were attached, and he remained in momentary expectation of an order for his execution. A heavy fine was levied on his effects, but his life was spared, the pardon being accompanied by the injunction to be reconciled to his wife Antonina, against whom he was incensed for her infidelity.

In 544 Belisarius was again named to command in Italy, where, through the incapacity of his successors, the slight remains of resistance which he had left behind were become formidable. Having set out from Constantinople with a few veteran troops, he succeeded in his progress through Thrace in collecting an inconsiderable force, with which he proceeded to meet the fleet at Salona in Illyricum, whence he despatched some ships to the relief of Otranto, which was besieged by the Goths. This squadron having raised the siege, rejoined him at Salona, and the whole armament proceeded by sea to Pola, also in Illyricum, where he spent some time in reviewing and exercising his troops. From this place he sailed along the coast of the Adriatic to Ravenna. For some time he was prevented by the insufficiency of his force from effecting anything considerable, and at last, leaving merely the necessary garrison in Ravenna, he sailed with the rest of his troops to Dyrrachium in Epirus, where he awaited the succours which he expected. Having with much delay obtained a scanty reinforcement, he proceeded by sea to the relief of Rome, which had, since the beginning of 546, been blockaded by Totilas, the Gothic king, and was now reduced to the extremity of famine. After a vigorous attack on the Gothic lines by Belisarius, which only failed through the disobedience of one of his officers, Rome was taken by treachery in the end of the same year; but Totilas was diverted from his design of razing the city with the ground by the remonstrances of Belisarius. In the beginning of 547 Totilas advanced against Ravenna, and immediately on his departure Rome was re occupied by Belisarius, and successfully defended by him against Totila, who retraced his steps and endeavoured to retake it. But, though successful in the neighbourhood of Rome, he was unable, from the smallness of his means, to put an end to the war; and from the same cause he afterwards suffered so many reverses, that in the year 548 he requested that either the force at his disposal might be augmented, or he might be recalled; and the latter alternative was granted.

Belisarius, having escaped assassination by the discovery of a conspiracy, the chiefs of which dreaded his inflexible fidelity, lived for some time at Constantinople in the enjoyment of wealth and dignity. In 559 the Bulgarians invaded the empire, and he received the command of the army destined to oppose them. After checking their progress, he was removed from the command by the jealousy of Justinian, and was never after employed in the field.

In 563 a conspiracy against the emperor was discovered, in which he was accused of participating. Of his subsequent fate there are two accounts. The more probable is that given by Gibbon, that his life was spared, but his fortune sequestrated, and that he was confined to his own palace. His innocence was soon acknowledged, and his property and freedom restored, but he did not long survive his liberation; he died in the early part of the year 565. A tradition relates that he was deprived of his eyes, and reduced to beg his bread, exclaiming to the passers-by, 'Give a penny to Belisarius the General!' but this is not countenanced by any authority older than the eleventh century, and can be traced no further back than to an anonymous writer in Banduri's *Imperium Orientale* (quoted by Lord Mahon, p. 467), and to Tzetzes, who wrote in the twelfth century. Though the last writer on the subject (Lord Mahon) labours hard to establish the truth of the tradition, his arguments do not appear sufficiently strong to induce us to receive it. The story of the blindness of Belisarius was adopted by painters, as we might naturally expect; and various modern writers also, such as Marmontel in his romance of Belisarius, have contributed to give it a popular character: but for these circumstances, a fact for which there is no reasonable evidence would hardly require even this brief notice.

Belisarius had one daughter, Joannina, by his wife Antonina.

He is described as being of a majestic presence, brave generous, and affable, and a strict lover of justice. His unshaken fidelity is sufficiently manifest from the whole course of his life. His talents for war appear to have been of the highest order, and we have few examples of such great effects produced with such small means. His character is stained by base subserviency to his wife, who appears to have been mainly concerned in the most objectionable passages of his career, and his ignorance or endurance of her infidelity rendered him ridiculous. The latter part of his life appears to have been liable to the charge of rapacity, but, when we consider his superiority to the age in which he lived, we shall be inclined, if not to pardon his defects, at least to excuse them in consideration of the corruption of the times.

(See Procopius; Jornandes, *De Reb. Get.*; Lord Mahon's *Life of Belisarius*; the sketch in Schlosser's *Universal-historische Uebersicht*, th. 3, abth. 4; and Gibbon, chaps. xli. xlii. and xliii.)

BELIZE. [See Balize.]

BELKNAP, JEREMY, was born in 1744. He took his degree at Harvard College, near Boston in North America, and was afterwards ordained minister of Dover church, in New Hampshire, in 1767. He remained here till 1787, when he entered upon the charge of a church in Boston, at which he officiated until his death in 1798. He is the author of a 'History of New Hampshire,' and commenced an American biography, only two volumes of which were published. He wrote also a number of religious, political, and literary tracts, and was one of the founders of the Massachusetts Historical Society. The biographical writers of the United States represent him as distinguished by industry, research, and extent of knowledge, rather than by the possession of remarkable intellectual qualities.

BELKNAP, SIR ROBERT, was bred to the study of the law, and became chief justice of the Court of Common Pleas, in the 48th of Edward III. (1374.) He continued to hold this office until the 11th of Richard II. (1388), when his removal from it took place under the following circumstances, which are given at length in Fuller's *Worthies of England*, p. 567. 'The king had a mind to make away certain lords: viz. his uncle, the Duke of Gloucester, the Earls of Arundel, Warwick, Derby, Nottingham, &c., who in the former parliament had been appointed governors of the kingdom. For this purpose he called all the judges before him at Nottingham, where the king's many questions in fine resolved themselves into this,—"Whether he might by his regal power revoke what was acted in parliament?" To this all the judges, Sir William Skipwith alone excepted, answered affirmatively, and subscribed it. This, Belknap underwrote unwillingly, as foreseeing the danger, and putting to his seal, said these words:—"There wants nothing but a hurdle, a horse, and a halter to carry me where I may suffer the death I deserve; for if I had not done this, I should have died for it; and because I have done it I deserve death for betraying the lords."' By thus acting against his conscience he lost the opportunity of transmitting an honourable fame to posterity; but his submission saved him only for a short time. In the succeeding parliament all the judges were arrested in Westminster Hall, on a charge of high treason. The lord chief justice of the Court of King's Bench was executed, and the other judges, with Belknap, barely escaped with their lives through the intercession of the queen; but their property was confiscated to the king's use. Fuller does not mention the birthplace of Sir Robert Belknap, but places him amongst the remarkable personages which the county of Leicester has produced, on the ground that a family of that name existed in the county when he collected the materials for his work, about the year 1660.

BELL, a vessel, or hollow body of cast-metal, formed to make a noise by some instrument striking against it. Bells of a small size are undoubtedly very antient. As pots and other vessels, more immediately necessary in the service of life, were doubtless made before bells, it seems probable that these vessels being observed to have a sound when struck, gave occasion to making bells in that form.

Small gold bells, intermixed with pomegranates, are mentioned as ornaments worn upon the hem of the high-priest's robe in *Exod.* chap. xxviii. v. 3, 4; and Calmet (*Dict.* 4to. Lond. 1797, vol. i. in voce) says that both were worn in the same manner by the kings of Persia. Among the Greeks we find hand-bells used in camps and garrisons. At certain hours in the night, patroles (called περίπολοι) went round the camp and visited the sentinels; and to try if any were asleep, they had a little bell (termed κωδών, *codon*), at the sound of which the soldiers were to answer: whence to go this circuit was called κωδωνίζειν, and κωδωνοφορεῖν. (See Potter's *Greek Antiq.* edit. Edinb. 1827, vol. ii. p. 74; compare also Aristoph. *Birds*, 842, 1160, edit. Brunck. 8vo. Argent. 1783; and Suidas, κώδων.) This custom furnished Brasidas with an advantage against Potidæa in the Peloponnesian war. Having observed that the bell had passed a certain part of the walls, he seized the opportunity before its return to set up his ladders, and nearly succeeded in entering the city. (Thucyd. iv. 135.) Plutarch mentions the use of the bell in the Grecian fish-market. (*Symposiac.* lib. iv. Oper. edit. Reiske, tom. viii. p. 653; and also Strabo in his account of Jassus, lib. xiv. edit. Falconer, fol. Oxf. 1807, p. 942.) The Romans had three chief appellations for the little bell, *petasus*, *codo*, and *tintinnabulum*; the second of these was evidently borrowed from the Greek word already mentioned: the last was probably intended to be imitative of the sound of the bell. The hour of bathing among the Romans was announced by a bell (Pitisci *Lexicon*, p. 966, col. ii), which was hence called by Martial *æs thermarum:* it was also in domestic use (*ibid.*); was adopted both as an ornament and an emblem upon triumphal cars (Zonaras, lib. xi. 32): and was fastened to the necks of cattle, that they might be traced when they strayed (Phædr. *Fab.* xi. 8, 4), particularly to the necks of sheep.

The large bells now used in churches are said to have been invented by Paulinus, bishop of Nola in Campania, about the year 400, whence the Nola and Campana of the lower Latinity. They were probably introduced into England very soon after their invention. They are first mentioned by Bede about the close of the seventh century. (*Hist. Eccl.* lib. iv. c. 28.) Ingulphus records that Turketul, abbot of Croyland, who died about the year 870, gave a bell of very large size to that abbey, which he named Guthlac. His successor Egelric cast a ring of six others, to which he gave the names of Bartholomew, Bettelin, Turketul, Tatwine, Pega, and Bega. He adds, 'nec erat tunc tanta consonantia campanarum in tota Anglia.' (Ingulphi *Hist. Script. post Bedam*, edit. Saville, fol., London, 1596, fol. 505 b.) Baronius informs us that Pope John XIII., A.D. 968, consecrated a very large new cast bell in the Lateran Church, and gave it the name of John. (*Annal.* a Spondano, p. 871.) The ritual for the baptizing of bells may be found in the Roman Pontificale.

Sir Henry Spelman, in his *Glossary*, v. *Campana*, has preserved two monkish lines on the subject of the antient offices of bells:—

> 'Laudo Deum verum, Plebem voco, congrego Clerum,
> Defunctos ploro, Pestem fugo, Festa decoro.'

Brand quotes the following monkish rhymes on bells, in which the first of these lines is repeated, from a tract entitled *A Helpe to Discourse*, 12mo. Lond. 1633, p. 63:—

> 'En ego Campana, nunquam denuntio vana,
> Laudo Deum verum, Plebem voco, congrego Clerum,
> Defunctos plango, vivos voco, fulmina frango,
> Vox mea, vox vitæ, voco vos, ad sacra venite.
> Sanctos collaudo, tonitrua fugo, funera claudo,
> Funera plango, fulgura frango, Sabbatha pango
> Excito lentos, dissipo ventos, paco cruentos.'

The city of Nankin in China, was antiently famous for the largeness of its bells, as we learn from Father Le Comte: but they were afterwards far exceeded in size by those of the churches in Moscow. A bell in the tower of St. Ivan's church, in Moscow, weighed 127,836 English pounds. A bell given by the czar Boris Godunof to the cathedral of Moscow weighed 288,000 pounds, and another given by the Empress Anne, probably the largest in the known world, weighed 432,000 pounds. According to Coxe (*Travels in Russia*, vol. i. p. 322), the height of this last bell was nineteen feet, the circumference at the bottom sixty-three feet eleven inches, and its greatest thickness twenty-three inches. The great bell of St. Paul's weighs between 11,000 and 12,000 lbs., and is nine feet in diameter.

The *Couvre-feu*, or *Curfew Bell*, the name of which is almost proverbial with us, is commonly supposed to have been introduced by William the Conqueror, and to have been imposed upon the English as a badge of servitude. Henry, however, in his *History of Britain*, 4to. vol. iii. p. 567, says that this opinion does not seem well founded. For there is sufficient evidence that the same custom prevailed in France, Spain, Italy, Scotland, and probably in all the countries of Europe at the same period; and was intended as a precaution against fires, which were then very frequent and very fatal, when so many houses were built of wood. The practice of ringing the curfew bell, that all people should put out their fires and lights at eight o'clock, is said to have been observed to its full extent, only during the reigns of the first two Williams. (See Brand's *Popular Antiq.* 4to. edit. vol. ii. p. 136.)

The *Passing Bell* was so named, as being tolled when any one was passing from life. Hence it was sometimes called the *Soul Bell*; and was rung that those who heard it might pray for the person dying, and who was not yet dead. Durand, who flourished about the end of the twelfth century, tells us in his *Rationale*, 'when any one is dying, bells must be tolled, that the people may put up their prayers: twice for a woman, and thrice for a man; if for a clergyman, as many times as he had orders; and at the conclusion a peal on all the bells, to distinguish the quality of the person for whom the people are to put up their prayers.' This practice is of high antiquity in England. Bede, in his *Ecclesiastical History*, lib. iv. cap. 23, speaking of the death of the abbess of St. Hilda, says, that one of the sisters of a distant monastery, as she was sleeping, thought she heard the well-known sound of that bell which called them to prayers, when any of them was departing this life. She no sooner heard it, than she raised all the sisters, and called them into the church, where she exhorted them to pray fervently, and sing a Requiem for the soul of their Mother. We have a remarkable mention of it also in the narrative of the last moments of the Lady Katherine (sister of Lady Jane) Grey, who died a prisoner in the Tower of London in 1567. Sir Owen Hopton, constable of the Tower, 'perceiving her to draw towards her end, said to Mr. Bockeham, Were it not best to send to the church that the bell may be rung, and she herself hearing him, said, "Good Sir Owen, be it so:"' and almost immediately died. (Ellis's *Orig. Letters, illustr. of Eng. Hist.* 2d ser. vol. ii. p. 290.) The tolling of the passing-bell certainly continued in use as late as the time of Charles II.: and Nelson (who died in 1715), in his Meditations for the Holy Time of Lent, (*Feasts and Fasts of the Church of England*, 8vo. Lond. 1732, p. 144.) speaking of the death of a good Christian, says, 'if his senses hold out so long, he can hear even his passing-bell without disturbance.' To the time of Charles II., the tolling of this bell formed one of the enquiries in all Articles of Visitation: there seems to be nothing intended by tolling it at present, but to inform the neighbourhood of a death.

A *Sanctus*, or *Saint's-bell*, many of which are still to be seen in our country churches, was so called, because it was rung when the priest came to those words of the mass, *Sancte, Sancte, Sancte Deus Sabaoth*, that all persons who were absent might fall on their knees, in reverence of the holy office which was then going on in the church. It was usually placed where it might be heard farthest, in a lantern at the springing of the steeple, or in a turret at an angle of the tower: and sometimes, for the convenience of being more readily and exactly rung, within a pediment or arcade, between the church and the chancel; the rope in this situation falling down into the choir not far from the altar. (See Warton's *Hist. of Kiddington in Oxfordsh.* 4to. Lond. 1815. p. 14, *note*.)

Ringing, says Sir John Hawkins (*Hist. of Music*, vol. iv. p. 211, *note*), is a practice which is said to be peculiar to England, which for that reason, and the dexterity of its inhabitants in composing and ringing musical peals, wherein the sounds interchange in regular order, is called the Ringing Island. Dr. Burney, in his *History of Music*, vol. iii. p. 413, mentions *Tintinnalogia, or the Art of Ringing*, published in 1668; a work, he assures us, not beneath the notice of musicians who wish to explore all the regions of natural melody; as in this little book they will see every possible change in the arrangement of diatonic sounds, from two to twelve; which being reduced to musical notes, would point out innumerable passages, that, in spite of all which has hitherto been written, would be new in melody and musical composition. In the art of ringing, however, melody has never been studied; mechanical order and succession have been all in all. The treatise on this subject at present in highest repute is *Campanologia Improved*, or *the Art of Ringing made easy*, 3d edit. 12mo. Lond. 1733, where the reader will find all the terms explained of single, plain bob, grandsire bob, single bob minor, grandsire treble, bob-major, caters, ten-in or bob royal, cinques, and twelve-in or bob maximus, with all their regular permutations.

The reader who is desirous of knowing more concerning bells may consult Hieronymus Magius *De Tintinnabulis*, 8vo. Hanov. 1608, and 12mo. Amst. 1664, in which book are many curious particulars relating to them. See also Arnoldus *De Campanarum Usu*, 12mo. Altdorf, 1665.

BELL, HENRY, an individual whose name is connected with the history of steam-navigation in this country. Dr. Cleland, in his work on *Glasgow*, speaks of him as 'an ingenious untutored engineer, and citizen of Glasgow,' and states that it may be said, without the hazard of impropriety, that Mr. Bell 'invented' the steam-propelling system, 'for he knew nothing of the principles which had been so successfully followed out by Mr. Fulton.' Fulton, however, launched his first steam-boat on the Hudson, Oct. 3, 1807, and it was not till more than four years after this date that Bell successfully applied steam to the purposes of navigation. In 1811 he caused a boat to be constructed on a peculiar plan, which was named the 'Comet,' in consequence of the appearance of a large comet that year. He constructed the steam-engine himself, and in January, 1812, the first trial of the Comet took place on the Clyde. Dr. Cleland adds:—'After various experiments, the Comet was at length propelled on the Clyde by an engine of three-horse power, which was subsequently increased to six. Mr. Bell continued to encounter and overcome the various and indescribable difficulties incident to invention, till his ultimate success encouraged others to embark in similar undertakings.' In the course of these experiments he unfortunately did not succeed in realising the advantages which were due to his enterprise; and had it not been for the liberality of the town of Glasgow, who settled upon him a small annuity, he would probably have spent his latter days in a state of poverty.

BELL, JOHN, generally called from his Scottish estate Bell of Antermony, was born in the West of Scotland in the year 1691. He was brought up to the medical profession, and passed as a physician in the twenty-third year of his age. Shortly afterwards he began those travels to which alone he is indebted for his celebrity.

He says himself, in the preface to his valuable book, 'In my youth I had a strong desire of seeing foreign parts: to satisfy which inclination, after having obtained from some persons of worth recommendatory letters to Dr. Areskine, chief physician and privy councillor to the Czar Peter I., I embarked at London in the month of July, 1714, on board the Prosperity of Ramsgate, Captain Emerson, for St. Petersburgh.' Russia then stood in need of and welcomed foreigners of talent and acquirements. Bell was exceedingly well received, and immediately on his arrival became personally known to Peter the Great, for whom he ever afterwards entertained sentiments of veneration and singular affection. He had very soon an opportunity of gratifying his passion for travelling, as at the time of his arrival Peter was preparing an embassy to Persia, and his friend Dr. Areskine having introduced him to Artemy Petrovich Valensky, the ambassador, he was engaged to accompany the expedition in quality of surgeon and physician. On the 15th of July, 1715, he left St. Petersburgh. 'That city,' he says, 'which has since grown so considerable was then in its infancy, having been founded only ten or eleven years before.' The embassy was obliged by the severity of the weather to halt and pass the winter at Cazan, which place, indeed, it did not leave until the 4th of June, 1716. It then proceeded by Astrakhan, the Caspian Sea, and Tauris to Ispahan, where the Persian monarch then held his court, and where Bell says he arrived on the 13th of March, 1717. He did not return to St. Petersburgh until the 30th of December, 1718, having been absent in all three years and six months. His account of this long journey is exceedingly interesting, and he tells us at the end of it, that in spite of the Swedish war in which the czar was engaged, the Russian capital had been so improved and beautified during his absence that he scarcely knew it again. He was grieved to find that his excellent friend Dr. Areskine was dead, but his love of travelling being as strong as ever, he was soon made happy by learning that Peter the Great was preparing a grand embassy to China. Valensky, whose affections he had engaged during the Persian expedition, recommended him to Leoff Vasilovich Ismayloff, the ambassador appointed to Pekin, who gladly availed himself of Bell's valuable services. Ismayloff, with Bell and a numerous retinue, departed from St. Petersbugh on the 14th of July, 1719, and travelled by Moscow, Siberia, and the great Tartar deserts, to the celebrated wall of China. They did not reach Pekin until sixteen months after their departure from the Russian capital, having undergone immense fatigue during the journey. They left the Chinese capital on the 2nd of March, 1721, and arrived at Moscow on the 5th of January, 1722. The account of this journey, and of what he saw and learned during his residence at the court of China, is the most valuable part of his book, and one of the best and most interesting relations ever written by any traveller. He fully confirms many of the almost incredible things told of the Chinese by the old Venetian traveller Marco Polo, with whose work Bell does not appear to have been acquainted.

He had scarcely recovered from the fatigues of his Chinese expedition, when, in May, 1722, he started on a long and dangerous journey with the Russian emperor to Derbent. a celebrated pass between the foot of the Caucasus and the Caspian Sea. This was the most original and singular expedition in which Peter the Great was ever engaged. Having concluded peace with Sweden he resolved to assist the Shah of Persia, whose territories had been invaded by the fierce and warlike Afghans: and accordingly Peter marched with an army, taking the empress with him. The Russians suffered severely during their return march, and even the emperor and his wife had some narrow escapes from the savage mountain-tribes that infested the rear and flanks of the retiring army. In the course of his account of this journey Bell introduces a short but good description of Tzercassia, or Daghestan (Circassia), and at the end of it he draws a fine character of Peter the Great, whose habits, both public and private, he had excellent opportunities of studying during the Derbent expedition. It appears that shortly after this journey Bell visited Scotland: and we do not hear of him again until 1737, when he resumed his travelling vocation. Three years before that date, a war, in which the emperor of Germany eventually became engaged, had broken out between Russia and Turkey. In the autumn of 1737 a congress was appointed to be held at Nemiroff, a frontier town of Poland, in order to prepare a peace through the mediation of the ministers of Great Britain, France, and Holland: but, on meeting, the plenipotentiaries of the powers at war could not agree, and the conferences were stopped. The court of Russia then determined on sending a confidential agent to Constantinople, and as during hostilities no Russian or German subject was allowed by the Turks to set foot on their territory, Bell, whose activity and talents were highly appreciated, undertook the mission at the earnest desire of Count Osterman, the grand chancellor of Russia, and of Mr. Rondeau, at that time British minister at St. Petersburg. Accordingly, on the 6th of December, 1737, Bell once more quitted the banks of the Neva, and travelling in the midst of winter, and through countries exposed to all the horrors of a barbarous warfare, arrived at Constantinople, attended by only one servant, who understood the Turkish language. On the 17th of May, 1738, he returned to St. Petersburg. (All his dates are according to the old style.)

We know very little more of this estimable man than what he tells himself in his book of travels, wherein he is far from being communicative as to his personal history. It appears, however, that he afterwards settled for some years as a merchant at Constantinople; that he married about the year 1746, and in the following year returned to Scotland, where he lived in ease and affluence on his estates of Antermony. He was a warm-hearted, benevolent, and sociable man, and he obtained from his friends and neighbours the appellation of 'Honest John Bell.' He died at a very advanced age on the 1st of July, 1780.

Although he had so much to tell he was by no means anxious to distinguish himself as an author. For many years the only record of his travels was a simple diary, to which he occasionally referred to refresh his memory, for he was fond of talking about his journeys and adventures with his intimate associates. In his preface, which is dated Antermony, the 1st of October, 1762, he says, that, 'About four years ago, spending some days at the house of a right honourable and most honoured friend,' and talking about his travels, he was pressed to throw his notes together in the form of a regular narrative, and that then, with diffident feelings, he began the work. A writer in the 'Quarterly Review' asserts that this most honoured friend to whom we stand indebted for a most excellent book, was Earl Granville, then president of the council, and this may probably be the fact. We, however, doubt the rest of the reviewer's story, which goes on to say that the volumes were written, or copiously revised, by a professed literary man. Honest John Bell speaks of them as his own faulty compositions, and excuses the 'plainness of the style,' which is their chief charm, and which could hardly have proceeded (so much individuality is there in it) from anybody but from a man relating his own adventures. The work, in two vols. 4to., was printed and published at Glasgow by subscription, in 1763. It has been several times reprinted in various forms, and a French translation of it has been widely circulated on the Continent. It includes the translation of a journal kept by M. De Lange, a gentleman who accompanied Ismayloff to Pekin, and who remained in that city to finish the negociations with the Chinese, for several months after the departure of the ambassador. This journal details the manner of transacting business with the ministers of state in China, and exposes their conceit and chicanery.

BELL, JOHN, an eminent surgeon and anatomist, the first who successfully applied, in Scotland, the science of anatomy to practical surgery, was born in Edinburgh on the 12th of May, 1763, and died of dropsy at Rome on the 15th of April, 1820. The grandfather of John Bell, of the same name, was minister of Gladsmuir in East Lothian, the parish which was afterwards held by the historian of Charles V. He died at the early age of thirty-two, with a high character for learning and virtue. The father of the subject of this article, the Rev. William Bell, a learned scholar and eloquent minister, was, in the course of his education for the presbyterian church, led, by a perusal of the English divines, to become a member of the episcopal church of Scotland, then in the lowest state of depression on account of its attachment to the exiled family of the Stuarts. By this act he entailed on himself a life of labour without any prospect of worldly advantages. The mother of Mr. John Bell was of a family which, in a long descent, had furnished clergymen to the episcopal church of Scotland during its splendour and in its decay. She was a woman of masculine understanding, tempered with great mildness and gentleness of manners, and improved by an excellent education under the care of Bishop White, her maternal grandfather. There were eight children of the marriage, two of whom died in infancy. Robert, John, George Joseph (the present Professor of Law in Edinburgh), and Charles, became eminent in their several professions. About a month before the birth of John, the father, then fifty-nine years old, had submitted to the operation for stone; and his admiration of that science to which he owed his safety led him to devote to the services of mankind, in the medical profession, the talent of the son born while his heart was warm with gratitude for the relief which he had obtained. He died on the 26th of September, 1779.

John Bell was educated at the high school of Edinburgh, and at the usual age was entered as a pupil in surgery with the late Mr. Alexander Wood of that place. He was very early remarkable for enthusiasm in his profession, and always engaged with great ardour in whatever he undertook. It is a proof of his early proficiency that he had hardly arrived at manhood before his assistance was eagerly sought by his teachers both in the departments of midwifery and chemistry. During the time that Bell was pursuing his studies, the medical school of the University of Edinburgh stood very high, ranking among its professors, Black, Cullen, and the second Monro. It was while attending the lectures of the last mentioned professor that Bell saw the way to his professional advancement. Monro was a zealous anatomist, and anatomy was well taught as the ground-work of medical science, but its application to surgery was quite neglected. This deficiency Bell was determined to supply, and in the year 1790, whilst yet a very young man, he built a theatre in Surgeon's Square, Edinburgh, where he delivered lectures on surgery and anatomy, carried on dissections, and laid the foundation of a museum.

As there was then scarcely any private teaching or means of cultivating anatomy by private dissections, the establishment of a school naturally excited great hostility against Mr. Bell, every attempt at private teaching being considered as an encroachment on the privileges of the professors and the rights of the university. In his lectures he was wont to speak of some of Monro's anatomical opinions with less respect than the character of that great man deserved, and he made no scruple to expose many mistaken doctrines and erroneous practices recommended in the system of surgery of Mr. Benjamin Bell. The tone and spirit of these criticisms raised up a host of enemies among the friends of these two gentlemen.

In 1799 a pamphlet was published, entitled 'Review of the writings of John Bell, Esq., by Jonathan Dawplucker.' It was an affected panegyric of Mr. Bell's works, and was dedicated to him; but the real design was to criticise his first volume of 'Anatomy,' to represent him as a plagiarist, 'to pluck from him all his borrowed feathers,' and to vindicate Dr. Monro and Mr. Benjamin Bell from his criticisms. The author was supposed to be some near friend of Benjamin Bell's. Mr. John Bell published a second number, under the same name of J. Dawplucker, addressed to Mr. Benjamin Bell. It contained ironical remarks on this surgeon's system of surgery, and had such an effect on the popularity of his work that it soon ceased to be the text-book for students. At this time Mr. (now Sir) Charles Bell was associated with his brother in teaching, the latter taking the surgical, the former the anatomical department.

The College of Surgeons in Edinburgh presented at this time a very anomalous condition. It was a college of surgery and a corporation, forming an integral part of the town-council of Edinburgh. The first character had fallen comparatively into neglect and oblivion, while the privileges belonging to the body in its relation to the burgh, exposed its members to the temptation of mixing in the politics of the town. This state of the college Mr. Bell was very anxious to alter; he wished to convert the college into a literary and scientific body, and to separate it from the politics of the city. It was a part of his plan that the college should resume the right, vested in them by their charter, of appointing a professorship of surgery, and take upon them their proper duty of watching over the interests of anatomy and surgery; that the examination should be placed on a more respectable footing; that the candidates should compose a thesis on some subject of surgery or anatomy, suggestions which have since been adopted, but the proposal of which at that time excited against Mr. Bell great opposition. The change which was at this time proposed in the surgical attendance at the infirmary, and which, on being ultimately carried into effect, proved fatal to Mr. Bell's prospects as a teacher, was supposed to have had its origin in this feeling. The members of the College of Surgeons were in rotation the surgeons of the establishment, and each surgeon, during his attendance, chose his own assistant for his operations, and those whose talents or inclinations did not lead them to take their share in the duties of the hospital, devolved those duties on others, and thus the surgeons particularly qualified for this situation soon distinguished themselves. Mr. Bell, from his expertness as an operator, was among the number.

Dr. Gregory drew up a pleading or memorial to the managers of the infirmary against this system, and proposed that two or three ordinary surgeons, the best qualified that could be got, should be permanently appointed, with assistant and consulting surgeons. Mr. Bell, seeing that the proceedings were intended to affect his interests and his plans of teaching, made an appeal personally to the board of the infirmary. He laid six folio books of cases on the table, filled with surgical drawings and surgical cases; he represented the long time he had served the poor in that house, and the great attention he had paid to the interests of his profession, and how assiduously he had laboured; he explained to them the manner in which he had taught his classes, that he had accompanied the students from the lecture-room to the infirmary; he explained to them how inseparably connected his system of teaching was with the best interests of the patients, as well as with the improvement of surgery. All this was in vain: in the end he found himself and his brother with many other surgeons deprived of the use of the institution. Mr. Bell brought the question before the courts of law, whether the managers had power to exclude him from the infirmary, and it was adjudged against him.

In 1798 he went to Yarmouth to visit those who had been wounded at Camperdown, and he there applied himself with the zeal and activity of the most devoted student to the proofs exhibited in the wounded of those great principles of surgery which it had been the business of his life to explain. In 1803 he made an offer to government for the embodying of a corps of young men, to be instructed in military surgery, and in the duties of the camp and hospital, in order to aid in the service of the country, then supposed to be on the eve of an invasion. The offer was first accepted, but subsequently declined.

After the loss of the infirmary, Mr. John Bell never resumed his lectures: he settled his mind to private study and professional occupation. He resumed his classical pursuits, and perused and enjoyed the authors of antiquity with his characteristic ardour. In 1805 he married a very amiable and accomplished lady, the daughter of Dr. Congalton, a physician long retired from practice, and he enjoyed in the society of Mrs. Bell and a large circle of friends twelve happy years in Edinburgh. Mr. Bell was always of a delicate constitution, and towards the end of this period his health declined so much that he was induced to visit the Continent, in the hope of regaining his strength by travelling and relaxation. In the course of his travels through Italy he made notes of his observations, which, since his decease, have been published by his widow. He finally sunk at Rome, under the effects of his complaint.

In 1793 Mr. Bell published the first volume of his *Anatomy*, consisting of a description of the bones, muscles, and joints. In a short time afterwards the second volume was published, containing the anatomy of the heart and arteries. The work was afterwards completed by his brother Charles. His next work was on surgery, entitled *Discourses on the Nature and Cure of Wounds*, in two small volumes, 8vo. The *Principles of Surgery*, in three vols., 4to., was his next and most formidable undertaking; and his last production is the *Letters on Professional Character and Education*, addressed to Dr. Gregory.

The character of this celebrated man may be summed up in a few words. He was a man of varied talents, and possessed great energy and industry, great facility in communicating his ideas, and great acuteness and discrimination in availing himself of all that knowledge which is essential to perfecting surgical science: but he had little patience with the very slow retreat of antient prejudices, and little acquaintance with the world, of which he was so much in advance. He was an entertaining and instructive writer, and a popular and eloquent teacher. As a controversialist he was acute and powerful, and as a writer pungent, even beyond his intention and desire. His work on Italy has shown that his talent for general literature, had it been exclusively cultivated, would have made him at least as eminent as his professional attainments have rendered him.

BELL-FLOWER. [See Campanula.]

BELL-METAL. [See Copper, Alloys of.]

BELL-METAL ORE, a name by which the sulphuret of tin found in Cornwall (see Tin Pyrites) is frequently known, owing to the aspect of bronze or of bell-metal which it possesses, in consequence of containing copper pyrites.

BELL (or INCHCAPE) ROCK, on the east coast of Scotland, lies at the opening of the bay formed by the Red Head in Forfarshire and Fifeness, and nearly opposite the entrance of the Tay. From Fifeness the Bell Rock is distant 11⅓ geographical miles, bearing N.E. by E. ½E. by compass. It is dry for about half a mile at low water spring tides: its average breadth is about 200 yards.

By an act of parliament a lighthouse was erected on this rock, in which a light was first exhibited on the 1st of February, 1811. The light, which is from oil, with reflectors, is 108 feet above the medium level of the sea: the tides rise ten feet, and therefore the light is 113 feet above low water. A bright and red light are exhibited, each of which attains its greatest strength every four minutes. There are two bells, which in thick foggy weather are tolled by machinery night and day, at intervals of half a minute. Prior to the erection of the light-house many wrecks took place annually on this rock, which was the more dangerous from having deep water all round it. (Stevenson's *Account of the Bell Rock Light-house*, 4to. 1824; Dessiou's *North Sea Pilot*.)

BELLAC, a town in France, the capital of an arrondissement in the department of Haute Vienne. It is on the bank of the little river Vinçon, a feeder of the Gartempe, whose waters flow into the Creuse, by the Creuse into the Vienne, and ultimately into the Loire. Bellac is probably about twenty-five miles N.N.W. of Limoges, the capital of the department. It is in 46° 7′ N. lat., and 1° 4′ E. long.

The town is built on the slope of a hill, at the foot of which the Vinçon flows. It does not appear to be a place of much trade. It possesses, however, several tan-yards, some paper-mills, and a foundry. Some woollens and linens are also made. The wines of the neighbourhood are of fair quality. The population in 1832 was 3025 for the town, or 3607 for the whole commune.

The castle of Bellac was a place of strength in the tenth century, and successfully withstood the attack of the combined forces of Robert King of France, son of Hugues Capet, and of the Duke of Aquitaine. The town sustained a siege in the civil wars of the sixteenth century. It was held for the king (Henry IV.), and was attacked by the forces of the League under La Guierche.

This siege is remarkable from the circumstance of the assailants having attempted to throw a bridge, after the manner of the antients, from a tower to the walls; but the bridge was destroyed by the guns of the town.

In the neighbourhood of Bellac, near the village of Borderie, is a fine druidical monument. The arrondissement of Bellac contains 780 square miles, or 499,200 acres, and is subdivided into nine cantons and seventy-nine communes. The population in 1832 was 80,061.

BELLADO'NNA, a violently poisonous wild plant. [See Atropa.]

BELLADO'NNA (literally *Fair Lady*) **LILY**, a species of Amaryllis, so called on account of its beauty and delicate blushing flowers. It is found wild at the Cape of Good Hope, has become naturalized in the ditches of Madeira, and is not uncommon in the gardens of England, where it lives for many years without shelter, if planted on a sunny border well protected from wet in winter. Its stems are about eighteen inches high, of a rich purplish green, with a dense violet bloom spread over them; the flowers grow in a cluster at the top of the stem, are of a funnel shape, with six divisions curving backwards at the points, and not less than three inches long; their colour is a rich but not deep rose, which varies in intensity in different varieties. They appear in August and September, without their leaves, and give an extremely rich and very exotic appearance to the borders in which they appear. The bulbs may be procured in any quantity from Madeira.

BELLAMY, MRS. GEORGE ANN, an actress of some celebrity. Her mother, whose name was Seale, after having been the mistress of Lord Tyrawley, married Captain Bellamy, and a few months after her marriage gave birth, on St. George's Day, 1733, to the subject of this article: this unexpected occurrence occasioned Captain Bellamy immediately to separate from her. The daughter was educated in a convent at Boulogne, till she was eleven years of age, when she returned to England. Rich, the manager of Covent Garden Theatre, overhearing her reciting the part of Othello to his children, was struck by her voice, and brought her out at the age of fourteen in the part of Monimia in the tragedy of 'The Orphan.' As an actress she drew the attention of the town for some seasons, particularly when she played Juliet with Mr. Garrick at Drury Lane, against Mrs. Cibber with Barry at Covent Garden. Her life, a memoir of which she wrote and published in six vols. 12mo., was a series of misfortunes and errors. She died February 15th, 1788, at Edinburgh, in great distress, aged fifty-five.

BELLAMY, JAMES, was born at Flushing of poor parents. As a boy he showed a great inclination for a military life, but being the only son of his mother, she put him to the trade of a baker, which he was still following, when in the year 1772, the second secular festival in commemoration of the foundation of the republic was celebrated throughout Holland. Till then he had never given any proofs of his genius, but this event suddenly made him a poet. His first verses were effusions of patriotic feelings and love for his native country. Some wealthy citizens of Flushing were so much pleased with these first productions of the young poet, that, to encourage his talent, they resolved to send him, at their own expense, to a university. Accordingly, after the necessary preparation for academical lectures, he went to Utrecht, with the intention of studying divinity. These studies, however, he soon left for the more congenial pursuits of poetry and general literature. A society of students, among whom Kleyn and Rau afterwards distinguished themselves, the first as a jurisconsult, the second as an orientalist, was then formed at this university, which had for its object the cultivation and improvement of the Dutch language and poetry after the German model: at the head of this society stood our poet. It was at Utrecht also, in the year 1785, when his country was involved in war, that our poet published his *Vaderlandsche Gezangen* (patriotic poems), which bear high testimony to his fiery imagination, superior taste, and facility in poetical composition. Previous to the year 1785 he had already published several pieces of merit, sufficient to induce the Society of Arts at the Hague to insert them in their collections. He also wrote a series of amatory poems, entitled *Gezangen myner Jeugd* (songs of my youth). Although Bellamy died before his genius had reached its maturity, he still must be ranked among the first poets of his nation, and the restorers of modern Dutch poetry. A presentiment, which he had of his approaching death, seems to account for a morbid sentimentality which his latter works betray. He died in 1786, at the age of twenty-eight. A short account of his life, together with two of his speeches, has been published by G. Kniper.

BELLARMIN, ROBERT, CARDINAL, 'who had,' says Bayle, 'the best pen for controversy of any man of his age,' was born at Monte Pulciano in Tuscany, in the year 1542. He entered the order of Jesuits in 1560; was ordained priest at Ghent by the celebrated Jansenius in 1569; and elected Professor of Theology at the University of Louvain in the year after. Having filled this chair for seven years with increasing celebrity, he returned to Rome in 1576, where he gave lectures on controversial theology. The Jesuits were at the time the great defenders of the church of Rome against the doctrines of Luther and the Protestants; and to their learning, ability, zeal, and worldly wisdom that church was mainly indebted for its vigorous stand against the assaults of the divines of the Reformation. In 1590 Bellarmin accompanied the pope's legate into France, for the purpose of affording the papal cause the aid of a master of the controversial points of divinity. In 1599 he was made a cardinal, but so little covetous was he of the honour that it is stated he was compelled to accept it only through threats of being anathematized for contumacy. Three years afterwards he was created archbishop of Capua, which see he quitted in 1605 for Rome, where he resided till his death in 1621, an active member of the court of the Vatican.

The controversial works of Bellarmin are very numerous, filling three large folio volumes. Of their merits, and of the merits, intellectual and moral, of their author, we have the following favourable opinion from the learned and candid Mosheim:-

'The disputants which the order of Jesuits sent forth in great numbers against the adversaries of the Church of Rome, surpassed all the rest in subtlety, impudence, and invective. But the chief leader and champion of the polemic tribe was Robert Bellarmine, a Jesuit, and one of the College of Cardinals, who treated, in several bulky volumes, of all the controversies that subsisted between the Protestants and the Church of Rome, and whose merits as a writer consisted principally in clearness of style, and a certain copiousness of argument which showed a rich and fertile imagination. This eminent defender of the Church of Rome arose about the conclusion of this century (sixteenth), and on his first appearance all the force and attacks of the most illustrious Protestant doctors were turned against him alone. His candour and plain dealing, however, exposed him to the censures of several divines of his own communion; for he collected with diligence the reasons and objections of his adversaries, and proposed them for the most part, in their full force, with integrity and exactness. Had he been less remarkable on account of his fidelity and industry; had he taken care to select the weakest arguments of his antagonists, and to render them still weaker by proposing them in an imperfect and unfaithful light, his fame would have been much greater among the friends of Rome than it actually is.' (Mosheim, *Ecclesiast. Hist.*, vol. iii. p. 155, Maclane's *Translation.*)

A much less favourable opinion was expressed by Scaliger in a criticism which has called down the just animadversions of Bayle (note L. art. 'Bellarmin'), who cannot well be suspected of any bias in favour of the Jesuit. Scaliger has ventured to assert that Bellarmin did not believe a word of what he wrote, and that he was at heart an atheist; but, besides the strong testimony of his life and death-bed to the contrary, such judgments are, as Bayle well remarks, a usurpation of the rights of Him who alone is the judge of hearts, and before whom there is no dissembling.

Besides the controversial works to which we have alluded, the Cologne edition, 1617, of Bellarmin's works contains three folio volumes of other works in addition to a volume of sermons and letters.

BELLA'TRIX, the name of the smaller of the two bright upper stars in Orion. The three stars of the belt rather incline towards it; it is of the second magnitude, and is marked γ by Bayer, and 24 by Flamsteed. The name (warrior) is indicative of the supposed astrological properties of the star; the old Arabic name is Al Mirzam al Nâjid, *the valiant lion.* [See ORION.]

BELLE DE NUIT, a name given by the French to various kinds of bind-weeds. In tropical countries those plants occur in great abundance, expanding their large, fragrant, and delicate flowers of white, or blue, or lilac, in such magnificence, that they may well be called the '*glory of the night.*' The species to which the name is more particularly applied, is what botanists call Ipomœa, or Calonyction Bona Nox, whose white flowers have a diameter of five or six inches, and open at sunset in the woods of the East and West Indies, drooping at daylight.

BELLE-ILE-EN-MER, an island on the west coast of France, a little to the north-west of the mouth of the Loire, in the department of Morbihan. It was known to the Romans by the name of Vindilis; and appears in a deed of the middle ages under the name of Guedel, a name which has some affinity with Vindilis. (D'Anville, *Notice de l'Ancienne Gaule.*) It was also, according to some writers, known to the antients under the Greek name of Calonesus, of which its modern designation of Belle-Ile (fair or beautiful island) is a translation. (Piganiol de la Force, *Nouvelle Description de la France.*)

It is said to have belonged in early times to the Count of Cornouailles, a small district in Bretagne, and to have been seized by Geoffroi, Count of Rennes, who bestowed the island upon the abbey of Redon. It was withdrawn from the possession of the abbey by Alain, son of Geoffroi, and restored by him to the Count of Cornouailles, who gave it to the abbey of Quimperlé. Possession was contested by the heads of the two ecclesiastical establishments, into whose disposal it had thus successively come; by repeated decisions it was confirmed to the monks of Quimperlé, but under them it remained almost a desert.

In 1572 the monks represented to the King of France, Charles IX., the inutility of their possession; they pointed out that in time of war it was occupied by the enemy, and in time of peace by pirates; and finally they prayed that he would take the island to himself, giving them in exchange some lands more suited to them, or allow them to effect an exchange with some private individual. By the king's authority, this last mode of exchange was effected, and Belle-Ile came into the possession of the Count de Retz or Raiz, then governor of Bretagne, and favourite of the king. It was erected into a marquisate, in favour of this count or his son, in 1573. The Count de Raiz, when he obtained the island, colonized it with settlers, who were in a state of abject vassalage to him; yet, notwithstanding this, the island so improved as to become a desirable acquisition for the government to make; and both Henry IV. and Cardinal Richelieu attempted to bring about its union with the domains of the crown, but in vain. The island, with the title of Marquis de Belle-Ile, afterwards came into possession of the family of Fouquet. In the reign of Louis XIV. the crown made some considerable encroachments on the rights of the lords of the island; and, in the year 1718, under the regency of the Duke of Orleans, while Louis XV. was a minor, the whole island came to the crown, in exchange for some lordships which were ceded to the marquis. (Expilly, *Dictionnaire des Gaules et de la France.*)

The island is of an oblong form: its greatest length runs N.W. and S.E., and is about eleven or twelve miles. The greatest breadth is about six miles. The longer dimension is in a direction parallel to the line of the coast of Bretagne, from which Belle-Ile is distant about sixteen or eighteen miles; but the peninsula of Quiberon, which stretches out into the passage between the island and the mainland, approaches to within six or eight miles of Belle-Ile. Close to the N.W. point of the island are some small islands or rocks, called the Conigues; the S.E. point is called Pointe Locmaria; and between this and the Conigues, on the S.W. side of the island towards the ocean, are the headlands Pointe du Vieux Château or Poulains, Pointe du Grand Guet, Pointe du Talus, and Pointe du Canon or Echelle.

Palais, the capital of the island, is on the N.E. side, nearly midway between the Conigues and Pointe Locmaria, facing the Breton coast. It is in 47° 21′ N. lat., and in 3° 9′ W. long. Between the island and the main are the small islands of Houat and Hoëdik, and several other islets or rocks. (*Maps of France*, by the Society for the Diffusion of Useful Knowledge, and by A. H. Brué, Paris, 1818.)

The general elevation of the soil is 160 to 170 feet above the level of the sea: it is the highest land along this part of the coast. The island is surrounded by rocks, frequented by sea birds; and the side towards Bretagne is in almost every place inaccessible, and in high winds the sea breaks with great violence upon the rocks which gird this coast. There are two roadsteads, the Grande Rade and the Rade de Sauzon, through which vessels pass coming from America or the West Indies. The mass of the island and of the surrounding rocks is calcareous. The summit of the island is a level plain, without trees, in which horizontal strata are observed. From the valleys which intersect this plain, springs of very pure water flow, and form by their junction small streams, which run into the sea.

The climate is mild and temperate. Ice and snow are rarely seen. The cattle need no shelter in winter, and the harvest never fails. The fig-tree, the laurel, and the myrtle flourish without any particular care. The soil is fertile, producing oats and wheat; but the farmers allow their land to lie fallow every other year. They use, for manure, sea-weed, fern, and broom, which have been allowed to putrify. (Expilly, *Dictionnaire des Gaules, &c.; Encyclopédie Méthodique, Géographie Physique.*) There is a good deal of common land, on which many sheep are reared. About 800 draught horses are exported yearly. (Malte-Brun.)

The island is said to contain 123 villages or hamlets, three small towns (bourgs), viz., Sauzon in the north-west part, Locmaria in the south-east part, and Bangor in the centre, and one town of more importance (ville), viz., Palais, the capital of the island. When Expilly wrote (1762), the island was divided into four parishes or quarters, named after the four towns. The population of the island is estimated in the last edition of Malte-Brun (Paris, 1832) at 8000.

The sardine or pilchard fishery is carried on to a great extent by the inhabitants of Belle-Ile. It commences in the month of June, and lasts till October. The fish are cured and exported to the coast of Spain, or to the French coast south of the island. The oil which is obtained during the process of curing the fish is either used in the island for careening the boats, or by the poor for their lamps, or else is sent to Nantes or Bordeaux, where it is used in the preparation of leather. (Expilly.)

The town of Palais is fortified, and is commanded by a citadel. A canal, which is filled by the tide, divides the city into two parts. There were, before the Revolution, two churches, the parish church, and that of St. Stephen. There are some salt-works. The harbour, which has a mole or jetty, is only for small vessels. It is adjacent to the Grande Rade, and is inferior to the harbour of Sauzon, which is three or four miles to the north-west of it, but which does not admit large ships. A third port, Le Goulfard, on the south-west or sea-ward side of the island, will admit larger vessels than either of the other, but it is not well sheltered from the south wind, and has a difficult entrance. (Expilly.) The population of Palais in 1832 was 1800 for the town, or 3584 for the whole commune.

The natives of Belle-Ile are a large, well made, bold race of people; as are also those of the little islands of Houat and Hoëdic, which have been already mentioned as lying between Belle-Ile and the Main. The inhabitants of these islands are engaged in fishing, or in raising a little wheat. (*Encyclopédie Méthodique;* Expilly.)

In the year 1761, during the war between England and France, Belle-Ile was attacked by an English armament: the naval force under Commodore Keppel, and the land forces (8000 in number) under General Hodgson. In their first attempt to land near Pointe Locmaria, the invaders were repulsed with considerable loss, but a second attempt was more successful. The whole English army was disembarked, drove the enemy into the town of Palais, and after meeting with a vigorous resistance, compelled the garrison to retire into the citadel. At last a capitulation was agreed to on honourable terms, and the island remained in the hands of the English till the peace of 1763, when it was restored. (Smollett's *Hist. of England; Annual Register.*)

BELLEISLE, a small island lying about fifteen miles north of the most northerly point of the island of Newfoundland, and about the same distance east from the coast of Labrador. It is placed near the middle of the north-eastern entrance to the Straits of Belleisle, in 51° 57′ N. lat., and 55° 40′ W. long. The island is about seven leagues in circumference. It has a small convenient harbour, called Lark Harbour, on the north-west side, capable of receiving only small vessels; and at the east point is another small harbour or cove which will admit only fishing shallops. (Anspach's *History of Newfoundland;* Malham's *Naval Gazetteer.*)

BELLEISLE, STRAITS OF, a channel which divides the north-west coast of Newfoundland from the coast of Labrador, on the continent of North America, and forms the northern entrance from the Atlantic to the Gulf of St. Lawrence. The length of the strait, from its commencement at Belleisle island to its termination at Grand Point south-east of Bradore Harbour on the Labrador coast, is twenty-seven leagues, and its general width about four leagues.

This passage is considered unsafe, and is in consequence but seldom frequented in the usual course of navigation by vessels entering the River St. Lawrence. The Labrador side of the strait is much indented with bays, among which are Temple Bay, Wreck Cove, Green Bay, Red Bay, and Black Bay. The coast of Newfoundland along the straits is uniformly without indentations. (Anspach's *History of Newfoundland:* Malham's *Naval Gazetteer.*)

BELLEGARDE, a fort in France, in the department of Pyrénées Orientales, or Eastern Pyrenees. It is 554 miles nearly due south from Paris, by the road through Nevers, Moulines, Clermont, Mende, Montpellier, Narbonne, and Perpignan, from the last of which (the capital of the department) it is distant about twenty-two miles. It is in 42° 29′ N. lat., and 2° 52′ E. long.

Bellegarde crowns the summit of a mountain, which lies close upon the frontier towards Spain, and is above the pass (le Col de Pertuis) through which runs the road from Perpignan to Figueras in Catalonia. Originally there was only a tower to defend the pass: this tower was, in 1674, taken by the Spaniards, who added to it some works; but it was retaken in July, 1675, by Maréchal Schomberg, commander of the French army in this quarter, the same who was afterwards killed in Ireland at the battle of the Boyne. After the peace of Nimeguen in 1679, Louis XIV. ordered a regular fortress, with five bastions, to be constructed. At one angle of the fortress are some outworks, cut in the solid rock, and inaccessible on one side from the precipice, on the crest of which they have been formed.

The town is very inconsiderable: in fact there is scarcely anything deserving the name. A few houses of entertainment for travellers, and some gardens which belong to the resident officers of the garrison, lie at the foot of the mountain. The only object of curiosity in Bellegarde is the well, which deserves notice for its great depth, and the hardness of the rock which has been cut through in order to obtain water.

In the war between France and Spain which followed the French revolution, Bellegarde became an object of contention. It was taken by the Spaniards in 1793, but was retaken by the French under General Dugommier, in September, 1794, after a siege of four months, and after a Spanish army, which attempted to raise the siege, had been defeated. The Spaniards sustained another defeat in an attack upon the besieging army the day after the place had surrendered. Dugommier, who was killed in battle shortly afterwards, was buried in one of the bastions.

The population of Bellegarde, as given in the *Dictionnaire Universel de la France* (Paris, 1804), our latest authority, was only 130. (*Dictionnaire Universel de la France;* Reichard's *Descriptive Road Book of France;* Martinière; Expilly.)

BELLENDEN, SIR JOHN, eldest son of Thomas Bellenden, Ballenden, Ballantyne or Bannatyne (for, by all these names is this family known), of Auchinvole, a lord of session, director of the chancery, and justice clerk of Scotland. He was some time secretary to Archibald Douglas, earl of Angus, lord chancellor and prime minister of Scotland, in the beginning of the sixteenth century. When Angus was, in September, 1528, indicted for high treason, of the many that had previously waited on him Bellenden alone continued his friend, and, though not a lawyer, drew up the defences for him. In 1424 an act had been passed by the Scottish legislature, providing, that 'gif there be ony poor creature that for lack of cunning or dispenses cannot or may not follow his cause, the King, for the love of God, sal ordain the judge to purvey and get a leil and wise advocate to follow sik poor creature's cause:' but here, the once potent Earl of Angus had for his first plea, that though 'callit upon oure life, landes, and gudes, and ar na man of law ourself, we can get na procuratour nor advocat to speik for us.' All his pleas and defences were overruled, and he was found guilty by the parliament, and attainted; but in March 1542-3, the attainder was reversed, Crawfurd says, on the grounds taken in the defences, and Angus restored to his estates and honours.

Bellenden immediately after had the honour of knighthood conferred upon him; and on his father's death, he was in June, 1547, appointed to the vacant places of a lord of session, director of the chancery, and justice-clerk. On the breaking out of the Reformation, he was named by the Queen Regent one of the commissioners between her and the lords of the congregation; but he soon joined the reformers, and in August, 1560, he and Wishart of Pittarrow are mentioned in Randolph's despatch to Cecil, as the two whom they had resolved to join in a mission to France (Robertson's *Scotland*, vol. i. p. 186), and on Mary's arrival in Scotland, he was, 6th September, 1651, appointed one of the privy council. In December following he was one of those named to modify stipends to the reformed clergy—the mean allowance for whom roused the indignation of Knox. On the 23rd September, 1563, he and Sir John Maxwell, the warden of the West Marches, met the English commissioners at Dumfries, where they entered into a convention for redressing the mutual trespasses on the borders. (Nicolson's *Border Laws*, p. 84, et seq.)

Sir John appears to have been thrice married. His first wife was Barbara, daughter of Sir Hugh Kennedy of Girvanmains, a friend of the Douglas family; and on the 1st May, 1559, he had a charter to himself and his said spouse of the lands of Waukmill with the Fullers-mill, and some other lands in the regality of Broughton, belonging to the abbey of Holyrood near Edinburgh. His younger brother, Patrick, who was made sheriff of Orkney, also married a daughter of the house of Kennedy, and on the 18th February, 1565, had a charter from Adam, bishop of Orkney, of the lands of Stenhouse in that diocese, to himself and Catherine his wife, and their children, whom failing, the said Sir John. On the 31st May, 1565, Sir John got a grant of the office of usher of exchequer—an office which seems to have remained in his family till 1796, when on the insolvency of the fifth Lord Ballenden it was attached, and sold by the creditors. The same year Sir John had a grant of the office of justiciar and bailie of the baronies of Canongate and Broughton, and other lands belonging to Holyrood-house; and the next year the commendator made him justiciar and bailie of Calder, belonging to the same abbey.

Among the numerous reports to which the murder of Rizzio gave rise, one was, that the Bellendens were implicated in the crime; and in the despatch from Randolph and the Earl of Bedford to the privy council of England, 27th March, 1566, it is said 'There were in this companie two that came in with the king, the one Andrewe Car of Fawdonside, whom the Queen sayth would have stroken her with a dagger, and one Patrick Balentyne, brother to the justice-clerk, who also, her grace sayth, offered a dag against her belly with the cock down:' but it is added, 'We have been earnestly in hand with the Lord Ruthen to know the varitie, and he assureth us to the contrarie.' (Robertson's *Scotland*, vol. iii. p. 227.) It would seem, however, that Sir John Bellenden fled from Edinburgh, on the 18th March, 1566, on the arrival of Mary and Darnley with an army; but he was soon restored to favour. He carried Mary's commands to Mr. John Craig, the famous fellow-minister of John Knox, to proclaim the banns between her and Bothwell, and had long reasoning with the church on the subject. The marriage was solemnized on the 15th May, 1567, by the above-mentioned Adam, bishop of Orkney—an act for which he had to ask pardon of the church, before they would allow him to remain in the ministry. The bishop of Orkney afterwards joined the association against Mary and Bothwell; and in July following he anointed and crowned the infant James. Sir John Ballenden joined the association likewise. He was also one of the Regent's privy council. In 1573 he was employed in framing the pacification of Perth, whereby all the queen's party, except Kirkcaldy of Grange, Lethington, and those with them in Edinburgh castle, were brought to the king's obedience. The same year he was, it seems, employed in a still more difficult affair, namely, to persuade the General Assembly on the behalf of Morton, that the civil magistrate ought to be head of the church as well as of the state. The discussion was continued for twelve days, and then adjourned. (Home's *History of the House of Douglas.*)

Sir John died some time before April, 1577, leaving by his first wife two sons, on the eldest of whom, Lewis, he by his latter will, dated in 1567, laid an injunction to serve the regent and the house of Angus, under the king's majesty's obedience, 'as I and my forbearis haf done, in tymes bypast, befoir all the warld.' Sir Lewis succeeded his father in his possessions, and in his place of justice-clerk. Thomas Bellenden of Newtyle got the vacant place of lord of session: 'quhilk place (says the king's letter) may not now be usit by our said familiar clerk, viz. Sir Lewis, by reason of his less age.' To what term of life this last expression applies is somewhat doubtful, chiefly because the opinion of Lord Hailes has intervened. His lordship conceives it to be twenty-five, though that age does not appear to have been required for the bench till the act 1592, c. 134. In the king's letter above referred to, the lords of session were enjoined to allow Sir Lewis to remain in court during its deliberations, 'that he may hear the reasoning of all causes with advysement of the processes and interloquitors thereof:' for it must be remembered that at that time the court of session always deliberated in secret. The practice indeed continued till the Revolution, when an act was passed, requiring the judges to advise and vote 'with open doors;' and it is not a little singular that, notwithstanding the importance of publicity and of the constant presence in court of a body of vigilant and intelligent lawyers to the due administration of the law, the practitioners before the court of session do generally continue to perambulate the 'Outer House' to this day.

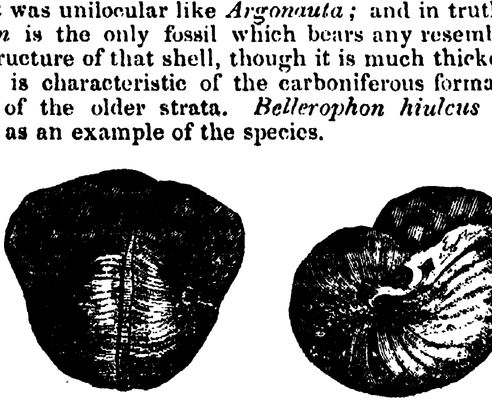
Sir Lewis's immediate younger brother, Adam, was bred to the church, and became bishop of Aberdeen. He had another brother, Thomas, said to be of a third marriage, who was for a short time one of the lords of session. The grandson of Sir Lewis was in June, 1661, created Lord Ballenden of Broughton; and on the death of the third Duke of Roxburghe, the latter honour devolved on his kinsman, the seventh Lord Ballenden, on whose death, the following year, the barony of Bellenden expired.

BELLENDEN, WILLIAM, an eminent writer, concerning whose birth and education we possess no certain information except that he was of Scotch family, became known as a writer in the commencement of the sixteenth century. It is stated that he filled the office of Professor of Humanity in the University of Paris in 1602, and that he was enabled to reside at that university through the favour of James VI. (James I. of England). It is certain that he resided a long time in Paris, and that the various writings which have transmitted his name down to us were published during his residence there. In 1608 he published his 'Ciceronis Princeps,' &c., 'a singular work,' says Dr. Bennett, Bishop of Cloyne, 'in which he extracted from Cicero's writings detached remarks, and compressed them into one regular body, containing the rules of monarchical government, with the line of conduct to be adopted, and the virtues proper to be encouraged by the prince himself.' This treatise, which is called 'De Statu Principis,' he dedicated to Prince Henry, the eldest son of his royal patron. In 1612 he published a work of a similar character, which he called 'Ciceronis Consul, Senator, Senatusque Romanus,' that is 'De Statu Reipublicæ,' in which the nature of the consular office, and the constitution of the Roman senate are perspicuously treated. Finding these works deservedly successful, he conceived, and partly executed, the plan of a third work, 'De Statu prisci Orbis,' which was to contain a history of the progress of religion, government, and philosophy, from the times before the Flood, to their various degrees of improvement under the Hebrews, Greeks, and Romans. He had proceeded so far as to print a few copies of this work in 1615, 'when it seems,' says Dr. Bennett, 'to have been suggested that his three treatises, 'De Statu Principis,' 'De Statu Reipublicæ,' 'De Statu Prisci Orbis,' being on subjects so nearly resembling each other, there might be a propriety in uniting them into one work, by republishing the two former, and entitling the whole 'Bellendenus de Statu.' With this view he recalled the few copies of his last work that were abroad, and, after a short delay, published the three treatises under their new title in 1616. A copy of the original edition of the 'De Statu prisci Orbis,' dated 1615, is in the British Museum. The great work being now completed, Bellenden looked forward (we still follow Dr. Bennett) with a pretty well-grounded expectation of that applause which his labour and ingenuity deserved. Unfortunately, however, the vessel in which the whole impression was embarked was overtaken by a storm before she could reach the English coast, and foundered with all her cargo. A few copies only, which Bellenden had kept for his own use, or made presents of, were saved; and accordingly the work, from its scarcity, was hardly known to even the most curious of book collectors. Dr. Bennett states that no mention is made of the work in either the 'Observationes Literariæ,' published at Magdeburg in 1705, or in the 'Amœnitates Literariæ,' published at Frankfort in 1728, though both are devoted to a history of scarce and learned books.

Bellenden, though naturally much concerned, was not, it seems, discouraged at his loss; but immediately set about arranging his materials in a new form. His studies had made him familiar with the works of the great Latin writers, particularly Cicero; and he designed a work with the title 'De Tribus Luminibus Romanorum,' in which he proposed to explain the character, literary merits, and philosophical opinions of Cicero, Seneca, and Pliny the elder according to some, the younger according to other critics. The first of these he finished, and was proceeding with the others when he died. The republication of the three original works above named of 'Bellendenus de Statu' in 1787, with a preface remarkable for its Latinity, and still more, perhaps, as being the vehicle of much fierce political invective against the character and administration of Mr. Pitt, and of unmeasured eulogy of the author's 'Tria Lumina Anglorum'—Mr. Burke, Lord North, and Mr. Fox—from the pen of Dr. Parr, has made Bellenden's name more familiar to the English reader than it otherwise might have been. In his preface, Parr affirms that Middleton, in his 'Life of Cicero,' borrowed largely from Bellenden, without making any mention of his name.

(See the works of Dr. Samuel Parr, edited by J. Johnstone, M.D., vols. i. and iii.; and *The Biographia Britannica.*)

BELLE'ROPHON (Zoology), a fossil shell, the animal of which is unknown, but which probably was allied to that of *Argonauta* and *Carinaria*. Denys de Montfort established the genus, but he placed it among the polythalamous or chambered shells. De France cut in half the very specimen which belonged to De Montfort, and thus proved that it was unilocular like *Argonauta*; and in truth, *Bellerophon* is the only fossil which bears any resemblance to the structure of that shell, though it is much thicker. The genus is characteristic of the carboniferous formation and some of the older strata. *Bellerophon hiulcus* may be taken as an example of the species.



[Bellerophon hiulcus.]

BELLES LETTRES, a vague term used by the French, which has been adopted by other nations, to signify various branches of knowledge, which are the produce of the imagination and taste, rather than of serious study and reflection. We do not find that the limits of this description of knowledge have been clearly defined. Rhetoric, poetry, history, philology, are generally understood to come within the definition of belles lettres; but the mathematical and natural sciences, jurisprudence, metaphysics, ethics, and theology, the fine arts, and the mechanical arts, are considered distinct from them. Antiquarian and classical researches are not always included among the belles lettres: the French Academy *des Inscriptions et Belles Lettres*, seems by its very title to make a distinction between the two, as the first part of the title, 'Inscriptions,' refers to the investigation of antient or oriental inscriptions, medals, &c. Belles lettres may be said to answer to the *literæ humaniores* of the Latin language, and to the English expression 'polite literature.'

BELLESME, BELLÊME, or BELESME, a town in France, in the department of Orne, formerly included in the district of Perche. It is near the source of the little river Meme (a tributary of the Huine, which flows into the Sarthe), 93 miles W.S.W. of Paris, 48° 22′ N. lat., 0° 31′ E. long. It disputes with Mortagne the title to be considered as the capital of Perche. It was under counts of its own at an early period, but the last of these was deprived of his domains by Henry I., King of England and Duke of Normandy, who gave Bellesme to the Counts of Mortagne, whose successors assumed the title of Counts of Perche. In 1228 Bellesme was besieged by the army of Louis IX. (St. Louis) of France, and taken in fifteen days, although it was then accounted one of the strongest places in Europe.

The town is tolerably well built, and stands on an eminence which commands the surrounding country. To the north of the town is the small forest of Bellesme, in which are some mineral springs, and also some iron mines. The wood of this forest is much used for cask staves, and furnishes the town with one of its most considerable articles of trade. Common linens and cottons are manufactured. The population in 1832 was 3264 for the town, or 3413 for the whole commune.

In the neighbouring forest of Bellesme, in the earlier part or the middle of the eighteenth century (as we gather from the phrase used by Expilly in 1762, 'il y a quelques années'), two antient inscriptions were dug up, apparently the inscriptions of an antient temple of Venus. The first contained simply the word 'APHRODISIUM;' the second consisted of the words 'DIIS INFERIS VENERI MARTI ET MERCURIO SACRUM.' (Expilly, *Dictionnaire des Gaules, &c.*)

BELLEVUE LES BAINS. [See BOURBON LANCY.]

BELLEY, a town in France, formerly capital of the district of Bugey, or Bugei, a subdivision of Bourgogne, or Burgundy [see BUGEY], and now the capital of an arrondissement in the department of Aix. It lies amidst the ridges of Jura, and not far from the banks of the Rhône, which in this neighbourhood is the boundary of the French and Sardinian territories. It is in 45° 45′ N. lat., and 5° 42′ E. long.

According to Martinière, no mention of this town is known to have been made of earlier date than the time of the Merovingian kings of France; but Malte-Brun* speaks of its having been destroyed by Alaric, A.D. 390, and rebuilt A.D. 412. A bishop of Belley (Latin, *Belica*) was at the second council of Paris in the middle of the sixth century; and tradition speaks of a bishop, Audax, at the commencement of the fifth century. The see is said to have been transferred here from Nyon in Switzerland. The town continued under the dominion of its bishops; and Frederick Barbarossa, emperor of Germany, granted to the then bishop all the rights of regality, including that of coining money. These ecclesiastics obtained also a seat in the Diet, which they retained as long as Bugey was an incorporated part of the German empire. Belley, with the district of Bugey, came subsequently into the hands of the dukes of Savoy, but in the year 1601 they were ceded to France by the Duke Charles Emanuel. The town is said to have been burned wholly or in part in 1385, and rebuilt by Amadeus VIII., duke of Savoy.

Before the Revolution, Belley possessed a cathedral and a parish church, an abbey for Cistertian nuns, convents for Cordeliers and Capuchins, and nunneries of Ursulines and Visitandines, besides a seminary for priests, a college, and an hospital. The cathedral is well built. The principal manufacture carried on is of calico and muslin, which is sent to Lyons and Avignon. (*Dictionnaire Universel de la France*, Paris, 1804.) Population, in 1832, 3550 for the town, and 4286 for the whole commune.

The arrondissement of Belley is bounded on the west by the Ain, and on the east and south by the Rhône. It contains 540 square miles, or 345,600 acres, and is subdivided into 9 cantons, and 118 communes. The population in 1832 was 79,744. The country round Belley is fertile, and the situation of the town agreeable. The river Foran, or Furand, a small feeder of the Rhône, flows a short distance west of the town.

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* M. Malte-Brun even goes so far as to say that Belley existed when Brennus made his expedition against Rome, and that it was destroyed by those who fled before the approach of the fierce Gaul, B.C. 390.

The bishopric formerly extended into Savoy. At present it includes the department of Ain. Population in 1832, 346,030. The bishop is a suffragan of the archbishop of Besançon.

BELLI'NI, JACOPO, was born in Venice. He was one of the earliest practitioners in oil painting, and his works have considerable merit, considering the age in which they were executed. He adorned the public edifices of Venice with a great number of pictures, the principal of which were a series of subjects from the New Testament in the church of St. John the Evangelist. He was distinguished in portrait-painting, and among many other eminent persons who sate to him were Lusignano, King of Cyprus, and the Doge Cornaro. This artist died in 1470.

BELLINI, GENTILE, was the eldest son of the preceding, and born at Venice in 1421. He studied under his father, and acted for some time as his assistant, but subsequently gained such reputation by his original works that he was employed, in conjunction with his brother, Giovanni, to decorate the great council-chamber of the Venetian senate-house. His other principal works are the Histories of the Holy Cross at San Giovanni, and the Preaching of St. Mark, at the college of that saint: this latter work vies in colouring and effect with the pictures of Paris Bordone, which hang near it, a proof that Bellini had made immense improvement on his original style; in other respects, the picture is marked by the barbarity of early art; the figures, which are numerous, are introduced without discrimination. the maimed, halt, and deformed, being among them, all painted with rigid regard to nature, but exhibiting ridiculous anachronisms, their costume being that of Turks or Venetians. His Presentation of the Infant Jesus at the Temple, in the Palazzo Barberigo, is a highly-esteemed performance. Some of Bellini's pictures were taken by commercial speculators to Constantinople, where, having been seen by the sultan, Mohammed II., that monarch sent an invitation to the artist to make a visit to his court. This proposal was accepted by Bellini; he was courteously received by the sultan, who sat to him for his portrait, and commissioned him to paint various historical works. Among the rest was the subject of the Decollation of St. John: this picture being completed was greatly admired by Mohammed, who pointed out, nevertheless, some inaccuracy in the marking of the dissevered neck; and in order to prove the justice of his criticism, he ordered the head of a slave to be struck off in the presence of the astonished artist. From this moment Bellini never enjoyed an hour's tranquillity until he had obtained leave to return to Venice. Mohammed dismissed him with many marks of favour, placing a gold chain round his neck, and giving him letters to the Venetian senate expressive of his satisfaction. During his residence in Constantinople he struck a medallion of the sultan. He was engaged in various public works after his return to Venice, for which he was requited by the republic with an honourable pension for life, and the order of St. Mark. He died in 1501, aged eighty.

BELLINI, GIOVANNI, the son of Jacopo, and the brother of Gentile Bellini, was born at Venice in 1422. He was the best artist of his family, and contributed, perhaps, more than any painter of his time to emancipate art from the dry Gothic manner of his predecessors. His first public works were those in the Venetian senate-house, in the decoration of which he was associated with his brother, Gentile. It is asserted by some authorities that the invitation of Mohammed II. was sent to Giovanni, but that the senate induced Gentile to go in his stead, being unwilling to lose the services of their most distinguished artist. Giovanni ornamented the public edifices and churches of Venice and other cities of Italy with a prodigious number of paintings, and continued his labours to a very advanced age. Among his most distinguished works are altar-pieces in the Sacristy of the Conventuali and at San Zaccaria at Venice; and in the monastery of the Capuchins in that city is a picture of the Infant Jesus slumbering in the lap of the Madonna and attended by angels, a work conspicuous for its grace, beauty, and expression. To these may be added a Virgin in the cathedral of Bergamo, a Baptism of our Lord at Santa Corona, at Vicenza, and Christ and the Woman of Samaria at the Well, in the Schiarra Palace at Rome. In all these works the elements of a finer style are more visible than had been practised either by Perugino, Ghirlandaio, or any of his immediate contemporaries. Bellini introduced a more ample style of drapery, he generalized his colour, and gave breadth to his masses; and although he fell short of the excellence which was soon after attained by Giorgione and Titian, he claims the honour of having given the first hints of that admirable style which was perfected by those great masters. Some of his small pictures are in England; but it is only by his large works in Italy that an adequate idea of his powers can be formed. He died at the age of ninety, in 1512. (Vasari; Lanzi; Rodolfi; De Piles.)

BELLI'NI, LAURENTIO, descended from a respectable family, was born at Florence in 1643. After receiving in his native place the elements of a classical education, he proceeded to Pisa, to enjoy the advantages which the Grand Duke Ferdinand II. granted to those who were disposed to study the sciences. At this time the doctrines adopted in order to explain the functions of the human body were derived from the sect of mathematical physicians, who ascribed them to mechanical principles. The leader of this sect was Borelli, then professor of mechanics and anatomy at Pisa. Under him, and also under Alexander Marchetti, professor of mathematics, Bellini studied, and imbibed their opinions. He made such rapid progress, that, when only twenty years of age, he was appointed professor of philosophy at Pisa. Shortly afterwards he was made professor of anatomy, and was frequently honoured with the attendance of the grand duke at his lectures. He continued to teach anatomy and to practise medicine at Pisa, with great success, for thirty years, when he was invited to Florence, and made chief physician to the Grand Duke Cosmo III. At the recommendation of Lancisi, physician to Pope Clement XI., he was nominated senior consulting physician to that pontiff. His reputation was also extended to foreign countries both by his writings and pupils, one of the most distinguished of whom was Dr. Archibald Pitcairn, successively professor at Leyden and Edinburgh, who introduced and maintained the doctrines of his master in these celebrated schools, where they held sway for a considerable time. Bellini died on the 8th of January, 1704.

Borelli and his pupil Bellini having likened the body to a collection of tubes, forming an hydraulic machine, calculated the force of the circulation of the blood and other fluids through them, making allowance for the diminished velocity of their course arising from the friction along the sides of the vessels, the angles at which the branches of the arteries were given off from the main trunk, the curves which were formed by the vessels, and the diminished calibre of these as they proceeded to their terminations. The moving or propelling force was not, in their opinion, solely mechanical, but arose from a fermentation in the blood, by which certain animal or vital spirits were disengaged, which forced the blood along the channels of the blood-vessels. So far, therefore, a unanimity of views existed between the chemical and mathematical sect of physicians. To give an example of Bellini's opinions, we may select his explanation of the alternate contractions and dilations of the auricles and ventricles of the heart: according to him, when the blood fills the ventricles, it compresses the nerves of the auricles, and so prevents the influence of the vital spirits, and causes the auricles to be distended.

His theory of respiration was of a similar kind. In his estimation, the sole object of respiration was to push the blood into the capillary or extreme vessels with a suitable degree of force. His views respecting secretion and inflammation are more important, as they had much influence upon practice, both during his own life and for nearly a century afterwards. The doublings and windings of the capillaries in the glands was the chief cause, in his view of the subject, of the different secretions, and an accumulation or prolonged stay of the blood in these vessels was the cause of inflammations and fevers. These opinions formed the basis of the doctrines of *obstruction* and *lentor*, which being adopted by Boerhaave in his eclectic system of medicine, were extended by him and his pupils to most of the medical schools of Europe. Their importance has greatly declined since the writings of Haller and John Hunter.

The writings of Bellini are now little read. The best is the treatise *Gustûs Organum novissime deprehensum*, Bononiæ, 1665, in which he pointed out the papillæ of the tongue to be the essential organ of taste. The next most important is entitled *De Urinis, Pulsibus, Missione san-*

guinis, *febribus*, &c., Bononiæ, 1683. His works have been collected and published in two volumes, 4to., *Opera Omnia*, Venetiis, 1708, and reprinted 1732.

Bellini possessed a taste for music and poetry, and was the author of a poem called *Bucchereide*, which was published after his death at Florence in 1729.

(See Sprengel, *L'Histoire de la Medicine*; Haller, *Bibliotheca Medicinæ Practicæ*, vol. iii. p. 124; *Fabroni Vitæ Italorum*, vol. iv.)

BELLINZO'NA, one of the three towns of the Canton Ticino in Italian Switzerland: Lugano and Locarno are the other two, which are by turns the seat of the cantonal government. It is situated in a pleasant valley on both banks of the Ticino, eight miles above its entrance into the Lago Maggiore, and on the road from Switzerland to Milan by the St. Gothard. The valley is very narrow at Bellinzona, and the town, with its three castles, completely shuts up the pass. Another road branches off three miles north of Bellinzona, eastwards, and along the Val Misocco into the canton of the Grisons, and over Mount Bernardin to Coire and the banks of the lake of Constance. This road puts eastern Switzerland and central Germany in direct communication with the Sardinian states which border the western bank of the Lago Maggiore, and thus the Austrian territories are avoided; goods from the port of Genoa are sent into Bavaria and Würtemberg, while German manufactures are sent down to Turin or Genoa. This useful road has been constructed since the last peace at the joint expense of the Grisons, the Canton Ticino, and the king of Sardinia. The following inscription is placed on Mount Bernardin: 'Jam via patet hostibus et amicis; cavete Rhæti! Simplicitas morum et unio servabunt avitam libertatem.' The traveller who descends either the St. Gothard or the Bernardin finds at Bellinzona the climate and the productions of Italy: the vine, the laurel, the mulberry and fig trees thrive there, and even the orange and lemon are trained against the walls. The neighbouring mountains are covered with large chestnut trees. Chestnuts and the *polenta*, or pudding made of the flour of Indian corn, constitute here, as in other parts of Northern Italy, the common food of the peasantry. The people of Canton Ticino are Catholics. [See TICINO.] The population of Bellinzona is about 1300. (Carta, *Manuale di Geografia*, Milan, 1826.) Bellinzona is seventy-five miles S.S.E. of the Hospice of the St. Gothard, fourteen miles north of Lugano, and thirty miles from Como, the first town of the Austrian territories on the road to Milan. (Kasthofer, *Voyage dans les petits Cantons et dans les Alpes Rhétiennes*; Walsh, *Voyage en Suisse, en Lombardie, et en Piémont*; Ebel's *Manual*.)

BELLMANN, CHARLES MICHEL, a Swedish poet, who is justly entitled to the fame of originality above all his Swedish contemporaries, was born at Stockholm in 1741, and died in 1796. He studied at the University of Upsala, and after he had left it was enabled to devote himself entirely to his favourite pursuits of poetry and literature by the liberality of Gustavus III., who appointed him to a nominal office, with a competent income, and the title of secretary of the court. The king had already favourably noticed Bellmann's earliest productions, which were a metrical translation from the German of Schweidnitz's 'Evangelical Dying Thoughts' ('Evangelische Todesgedanken'), published when he was only sixteen; and a poem entitled 'Zion's Högtid' (the 'Festival of Zion'); to which some years afterwards were added: 'Bachi Tempel' (the 'Temple of Bacchus'), the most important of his poems; Friedmann's 'Epistler og Songer;' and a Swedish translation from the German of Gellert's 'Fables.' His posthumous works, 'Skaldestykken' ('Poems'), and Friedmann's 'Handskrifter' (Friedmann's 'Manuscripts'), were published; the first at Stockholm, 2 volumes, 1812, and the second at Upsala, 1813. Bellmann's poetical pictures generally represent scenes of the lowest life in Sweden; but they are so chaste, so true, so full of imagination, and their colours are so lively, that the reader forgets the scenes of vulgarity to which he is introduced, and finds himself suddenly transported from low tap-rooms to cheerful habitations of joy and song. To enter, however, fully into the spirit of Bellmann's lyrical productions, it is necessary, not only to read them, but also to hear them sung to the tunes which were composed expressly for them. Bellmann had a heart open to friendship, he was a cheerful companion, and bore a good moral character. (See Ersch and Gruber's *Encyclopædia*.)

BELLO'NA, the goddess of war among the Romans, corresponding in some measure with Enyo of the Greeks; but much confusion has arisen in the study of antient mythology from the habit of looking upon the names of the Greek and Roman deities as convertible with one another. Where there are some points of resemblance, there are often still more of dissimilarity, especially as regards those deities which were the objects of religious honour among the Romans before the introduction of Greek and Asiatic forms of worship. The Saturn of the Romans, for example, is far from identical with the Kronos of the Greeks; Minerva, again, differs much from Pallas, and Diana from Artemis. The greater part of the deities strictly belonging to the Romans have names which have grown out of the language itself. This cannot be said of the Greek deities. Thus, *Bellona* is properly a feminine adjective, which with the noun *dea* signifies the goddess of war (from *bello*, war); so Pomona, the goddess of fruit (*pomo*); Portunus, or Portumnus, the god of harbours (*portu*); Vertumnus, of change (*versu*, antiently *vertu*); Silvanus, of woods (*silva*): Luna, or Lucina, the goddess of light (*luc*, and perhaps *luci*); Fortuna, the goddess of chance (*fort*, or more probably from an obsolete noun *fortu*); Dianus, afterwards Janus, the god of light, until the Greek Apollo usurped this character; Diana, or Jana (a name actually used), the goddess of light or moon (*die*, day). On the same principle, no doubt, are formed the names of Vulcanus (compare *fulgeo*, φλέγω, shine, blaze), Neptunus (compare νίπτω, wash, and *nympha*, a goddess of water), Saturnus (compare *satur*, full), Picumnus, Pilumnus, Faunus; and we might perhaps look upon Auctumnus (from *auctu*, increase) as a deity.

Another principle which pervades the Roman mythology is the division of each object of fear or desire between deities of either sex. (Niebuhr, *Roman Hist.*) We have already seen Dianus and Diana. Besides these, there occur Saturnus, the god of plenty; Ops, the goddess of plenty; Vulcanus and Vesta, the god and goddess of fire; Tellumo and Tellus, of earth; Neptunus and Nympha (Nimfa would be a more correct Latin form), of water; Jupiter, or rather Jove, and Juno, of air. In the same way they had Mavors (or Gradivus), together with Bellona, to preside over war.

The temple of Bellona was founded, according to Pliny (xxxv. 3), in the year 259 of Rome, by App. Claudius, the colleague of P. Servilius Priscus. Livy, however (x. 19), refers the foundation to App. Claudius Cæcus, the colleague of L. Volumnius, in the year of Rome 456; and the latter is confirmed by an inscription in Gruter (389. 4). Both accounts will be substantially true, if the latter only rebuilt the temple. When any Roman family had once connected its name with a public work, those who afterwards bore the name had a pride in keeping up the connexion. The temple was situated in the ninth region, between the Carmental Gate and the Flaminian Circus, and consequently without the walls of Servius. It was on this account the place usually selected by the Roman senate and consuls for the reception of embassies from hostile powers, and also of their own generals, especially when these came to claim a triumph; for the *imperium*, or supreme military authority, was at once annulled by an entrance into the city, and with it all claim to a triumph. Near the temple was a column, over which a spear was hurled as a declaration of war against any foreign state. (Ovid, *Fasti*, vi. 201.) This rite was introduced to supply the place of another. According to the original ceremony, a herald, or *fecial*, proceeded to the frontiers, and hurled a spear of defiance into the hostile territory; but as the limits of the empire were extended, this became impracticable.

The goddess was usually represented as wearing a helmet, and bearing a shield in one hand, in the other a firebrand, a spear, or a lash. Sometimes she was blowing a trumpet, or uttering a war-cry and rushing to the combat. Her image is seen on the coins of the Bruttii, or Brettii. (Montfaucon, *Ant. Ex.* i. 126.)

The wildest extravagance marked her worship. Her priests (Bellonarii), like those of Cybele and Bacchus, affected insanity (Juvenal, iv. 123), whirling their heads round with fearful rapidity, and shrieking out words of pretended prophecy. On the 24th of March, which was appropriately called the day of blood, they exhibited their zeal by making incisions in their arms, and sprinkling all around with their blood. The more prudent among her followers, however, contrived to produce the appearance of wounds without any self-torture, a laxity which the Emperor Commodus corrected by a special precept that the devotees of the goddess should make *bonâ fide* incisions; but, besides the priests officially attached to the worship of the goddess, there were volunteers who, impostors or enthusiasts, frequented her temple and exhibited the same symptoms of phrenzy. Such scenes indeed were to be seen in the temples of other deities, but more particularly in that of Bellona. The wretched creatures were called *fanatici* (from *fano*, a temple), which, though a term of reproach or compassion among the educated, was a title of honour in their own estimation, and proudly engraved on public monuments. See an inscription given by Gruter, 313, 1, 'To Q. Caecilius Apollinaris, fanatic of the temple of Bellona,' and another in 312, 7.

The worship of Bellona was not unlike that of the goddess Ma, in the sacred cities of Cappadocia and Pontus called by the common name of Comana; and hence the Roman writers often use the title of Bellona when speaking of the Cappadocian goddess. Strabo in the same way calls her Enyo.

The earliest orthography of the name of the Roman goddess was Duellona, agreeing with *duellum*, the older form of *bellum*. [See article B, for the interchange of *du* before a vowel with *b*.]

BELLOWS. This term is applied not only to the common instrument in use, but to any machine which serves to force a current of air against a fire. The principle of all these different adaptations of parts is the same, and is very similar to that of a forcing pump. By one motion a vacuum would be made, if it were not for a valve which opens towards the incipient vacuum, and admits the air: by a contrary motion the air just admitted is expelled, not by the valve which is now closed, but by any other orifice.

When a furnace is to be supplied with a perpetual blast of air, it may have two separate bellows, worked by the same machinery, in such a way that one is discharging air while the other is receiving a new supply. The inconvenience of this construction is, that the blast, though perpetual, is not of uniform strength. The blast-furnaces of Merthyr, in Wales, are worked by one huge air-pump, which condenses the air in spherical reservoirs, out of which the blast-pipes lead to the furnaces. In cases where a uniform and gentle blast is required, as in the organ, the air is condensed into a reservoir called the wind-chest, which supplies the pipes. [See ORGAN.] A patent has lately been obtained for a construction by which a perpetual and uniform blast is produced, and instruments for domestic use are manufactured. It consists in a vaned wheel, which is enclosed in a vessel communicating with a tube, the vessel and tube being, in their longitudinal section, in form like that of a retort. A supply of air is obtained by holes in the side of the vessel, so that, on turning the vane by an exterior apparatus, the air is driven through the tube, and the blast thus created is permanently supplied by the lateral holes. These instruments are very cheap, and more effective than the bellows in common use.

The oldest representation of bellows is in the Egyptian paintings copied in the work of Rosellini, now (1835) in course of publication. (See M. C. Pl. L.) There are two pair of bellows, one on each side of the fire, with which they are connected by long tubes of wood or cane, terminating in pointed metal snouts. A string is attached to each bellows, and the blower takes one string in his right hand and the other in his left. He presses with one foot on the bellows that is filled with air, at the same time raising his other foot from that which is just exhausted, and also pulling upwards with the string that is attached to it.

BELLU'NO, a town in the Lombardo-Venetian kingdom, and the chief place of the province of the same name, which forms the most northern part of Austrian Italy, being divided from Carinthia by the Noric Alps. In the time of the Venetian republic, the district called 'il Bellunese' was circumscribed within narrower limits than the present province of Belluno, which includes the territories of Feltre and Cadore. The province of Belluno is bounded by the Tyrol on the west, Friuli on the east, Carinthia on the north, and the province of Treviso on the south. It is watered in its length from N. to S. by the river Piave. The population of the province amounts to 122,000. (Serristori, *Saggio Statistico dell' Italia.*) The country is mountainous, and affords good pastures. Cattle, and the produce of the dairy, timber, which is cut from the mountain forests and floated down the Piave to Venice; and copper from the mines of Agordo, constitute the chief wealth of the country. The vine and other fruit-trees thrive on the lower hills about the valley of the Piave. The country abounds with game. An account of the copper-mines of Agordo, and the works connected with them, has been published by Corniani degli Algarotti (*Dello Stabilimento delle Miniere e relative Fabbriche del Distretto d' Agordo*, 8vo. Venezia, 1823). The towns of the province are Belluno, Feltre, and Cadore. The town of Belluno is built on a hill, near the right or western bank of the Piave, in 46° 10′ N. lat., and 12° 20′ E. long., and 55 miles N.N.E. of Padua. It is a bishop's see, and is the residence of the delegate or governor of the province. Its population is about 8000. The cathedral was built after Palladio's design. The palace of the government is a handsome structure; and the town is adorned with several marble fountains. It has a gymnasium, and an 'Instituto d'Educazione,' or higher school for the education of females, besides elementary schools for the children of both sexes. Perrin Victor, one of Napoleon's generals, Marshal of France, and Duke of Belluno, took his title from this place.

BELON, PIERRE, one of the fathers of natural history on the revival of letters, was born at a hamlet in a parish of the French province of Maine, somewhere about the year 1518. Deservedly great as is the fame which he acquired, nothing seems to be known concerning his family, which is generally considered not to have been of note. Medicine and botany were his studies at a very early period of his life; and the bishops of Mans and of Clermont, and afterwards the cardinals of Tournon and of Lorraine, were his patrons. To their fostering care he owed his education, the means of travelling, and the opportunities of publishing the observations which he so well knew how to make.

He visited Germany, Bohemia, Italy, Greece, Egypt, Palestine, and Asia Minor, and appeared in Paris, after three years of absence, in 1550, with a fine and extensive collection, which he arranged: he then proceeded to publish his works.

In 1557 he traversed Italy, Savoy, Dauphiné, and Auvergne. In 1564, when he was about forty-five years old, he was cut off in the midst of his useful career by the arm of an assassin, as he was returning to Paris. The Bois de Boulogne was the scene of this murder.

It would be out of place in a work of this description to give a catalogue of his various and excellent publications. The sciences of botany, zoology, geography, and antiquity, were all enriched by his labours.

Henry II. and Charles IX. of France reflected honour on themselves by the esteem which they showed for this celebrated man, who was far in advance of the age in which he lived. [See BIRDS.]

BELOOCHISTAN, or the country of the Belooches, extends along the coast of the Indian Ocean from the river Indus nearly to the straits of Ormuz, beginning on the east with Cape Monze or Ras Mooaree, and terminating with Cape Jask on the west. In the interior it extends farther east and west, so that its extreme boundaries are 57° 50′ and 69° 10′ E. long., and 24° 50′ and 30° 40′ N. lat. Its average length may be 600 and breadth 300 miles, which will give an area of 180,000 square miles, or about the surface of the British island and one-half more.

This country was formerly considered as constituting part of Persia and afterwards as belonging to Afghanistan; but it has lately been ascertained that its dependence on Caubul is merely nominal, and it is now considered as a separate country.

The countries bordering it on the east, and lying on both sides of the lower course of the Indus, are under the dominion of a Beloochee family, and on that account often included in Beloochistan; but we shall treat of these districts in the article SINDE.

The central parts of Iran (Persia) are occupied by extensive deserts, which extend from S.E. to N.W. upwards of 600 miles, and in breadth in some places from 400 to 500. These deserts are inclosed on all sides by a wide border of mountain-tracts. Beloochistan forms the most southern part of this border, and separates the deserts from the Indian Ocean. A considerable part of the deserts is included in its boundary, and is called the desert of Beloochistan.

The desert forms its northern boundary, except at its north-eastern corner, where an elevated mountain-region joins the numerous ranges inhabited by the Cawkers, a savage nation subject to Afghanistan. This mountain-region, extending southward and terminating in a single range on the shores of the Indian Ocean, divides Beloochistan from Sinde; but a considerable tract, lying on the declivity and at the foot of the mountains, is under the dominion of the Khan of Kelat, and forms the province of Kutch Gundava. The western boundary of Beloochistan is likewise formed by mountain-ranges, which begin on the coast with Cape Jask and Cape Bombarack or Ras Kerazee, at the latter of which the straits of Ormuz commence, and stretch northward to the desert, where they terminate with the Surhud Mountains, which divide the Persian provinces of Mogistan and Kerman from Beloochistan.

The Hala Mountains, which begin at Ras Mooaree and rise abruptly to a conspicuous height, run for about a hundred miles N.E., and form in this space one single chain with a few short lateral ones, which extend in breadth from thirty to forty miles, and separate the plains on the Indus from those of the province of Lus. Near 26° N. lat. the principal chain begins to run due north, and continues thus to the most northern extremity of the country. At the same place (26° N.) a high lateral chain branches off to the N.W., in which direction it continues for upwards of 200 miles, declining afterwards gradually to the N. and N.E. till it terminates nearly at the most northern point of Beloochistan with the Ajrum range. At a short distance from the Ajrum range the Tukkatoo Mountains begin, and running east, soon join the Hala range, which is here called the Umbar Mountains.

The extensive tract enclosed by these ranges is an upland country and comprehends the provinces of Jhalawan and Sarawan, with the intervening district of Kelat, and the two districts of Mustoong and Shawl, which form the most northern angle of Beloochistan. This upland country extends nearly 200 miles in breadth in 28° N. lat., but it grows somewhat narrower to the north and south of this parallel; but even at the most northern extremity it may be a hundred miles across.

Where this upland country is widest, that is, in the parallel of Kelat and about fifty miles to the north and south of it, the whole surface is covered with a succession of high mountains and narrow valleys, with only small levels between them. The highest part of this mountain-tract is about Kelat, where the elevation of the whole country may be not much less than 8000 feet above the level of the sea. To the south, as well as to the north of it, are some plains of considerable extent, which, like a succession of terraces, seem to decrease in elevation as they recede from the central mass. Such plains on the south are those of Soherab (from thirty to forty miles in length and from ten to twenty in breadth), Khozdar, and Wudd, and on the north the Desht be Doulut (the desert without riches) and the plain of Quetta. These plains are generally divided from one another by ridges twenty miles and upwards in breadth. That part of the province of Sarawan which is to the west of the mountains and borders on the desert has a large portion of level ground stretching out in extensive plains.

The climate in the higher parts of this upland country resembles that of the northern countries of Europe, and has four seasons. Snow falls from October to the end of February; and from the close of the month of November to the beginning of February the whole country, even the valleys, are covered with it; at the same time the frost is very intense and commonly attended with north-eastern winds. The winter is followed by a good deal of rain in February or March, and then comes the dry season, which lasts to September. September and October are showery, and so is the whole cold season, except during frosty weather, when the air is keen and bracing. The heat is never unpleasant, unless it may be a few days at the close of the summer, and in the country bordering on the great desert.

The mountains consist of hard black or grey rocks, and the earth in the plains and valleys is mixed with such a profusion of pebbles and stones, that there is often not the slightest appearance of mould; yet in some places the crops of wheat, barley, and jawaree (*holcus sorghum*), are plentiful, and other places afford excellent pasture for sheep and cattle. Wheat is sown in August and September and reaped the June following. Rice is only planted in the low valleys, where there is a supply of water to keep it flooded, which is only practicable in the southern districts. In the northern districts there is not a single stream which is above the rank of a rivulet, unless when swollen by heavy rains or the melting of snow.

Kelat or Kelaut-e-Nausseer is the residence of a khan, whose dominion extends over a country larger than England. This town is enclosed with a wall of mud, and stands partly on the declivity of a hill, on which the palace of the khan is built. It contains 3750 houses and about 20,000 inhabitants.

Among the smaller towns are Sarawan, with 500 houses, and Kharan, which is somewhat larger, in the province of Sarawan, and Zuhuree in Jhalawan, with from 2000 to 3000 houses. In the district of Shawl is Quetta or Kwotta, with 400 houses, a place of some trade.

At the northern extremity of the upland country which we have here described, the plains of Iran approach nearer to those on the Indus than at any other place, and as a smaller number of mountain-ridges here opposes the progress of the traveller, this district has been chosen for the common line of communication between the high plains of Iran and those on the Lower Indus. Two passes are already known, each of which begins at the town of Quetta in Shawl. One traverses the Hala Mountains in a southern direction and leads to the town of Dadur in Kutch Gundava. This pass, running through the Vale of Bolan, has received the name of the Pass of Bolan. The other road passes from Quetta south-west to Mustoong, thence south to Kelat, and from Kelat in a south-eastern direction to Gundava, the capital of the province of Kutch Gundava. The latter pass is practicable for loaded camels.

The province of Kutch Gundava forms a striking contrast with the upland country. It extends on the eastern side of the Hala Mountains, and belongs, properly speaking, to the plains on the Indus; but it does not extend to the bank of that river, being separated from it by a desert tract. Its length from north to south is about 120 miles, but the habitable and fertile part of it is little more than sixty miles broad. The southern boundary is formed by a jungle of low trees, which between Saatee and Poonoo runs east and west, and extends southward to the Indus, whose banks it fringes.

The whole of this province consists of a plain of arid white soil, the crusted surface of which, in dry weather, is cracked like the dried bed of a marsh. It would be unfit for cultivation but for the rivers, which in the rainy season inundate a large portion of the plain, and whose water is brought by canals and embankments to the places which lie farther off, and reserved to fertilize the country in the dry season. The two most considerable rivers are the Naree and the Kauhee, both of which issue from the mountains where the Tukkatoo range crosses the Umbar chain and unite nearly in the centre of the plain. Its course hence is southerly to Cunda, where the river goes off to the west, nearer the mountains, and loses itself in the sand and impenetrable jungle. According to some, the Naree reaches the sea. (Conolly.) This river has an immense quantity of water when heavy rains prevail or the snow on the mountains melts, but it is often almost dry for months at a time.

This plain partakes of the climate of the intertropical countries, the year being divided between the dry and the rainy season. The latter lasts during the south-west monsoon (from July to September), and the dry season occupies the remainder of the year. The winters are very mild, but the heat of the summer is oppressive. In the latter season the Badé Sumoom or pestilential wind blows frequently, and many people lose their lives by it. Kutch Gundava is a grain country, and many sorts are cultivated to a great extent, more especially jawaree, bajree (*holcus spicatus*), and wheat, besides cotton, indigo, and til (*sesamum*). The villages in this fine plain are very numerous, and are increasing every year. Gundava, the capital, is not so large as Kelat, but is better built, and probably contains about 20,000 inhabitants. The other considerable places are Dander, Bhag, and Lheree, of which Dadur contains 400 houses and Bhag or Baugh 2000.

The province Lus, which extends along the shore of the Indian Ocean, between the sea and the upland region, is a plain perfectly flat, and in general barren, except on the banks of the rivers, where it produces abundant crops of grain, sugar-canes, &c. The remainder is partly covered with sand and partly bare and stony, or diversified with thick jungle. Along the sea-coast a salt marsh extends twelve or fifteen miles inland, which is diversified with tamarisk and other jungle, and in many places perfectly white with salt. To the north of Bela the country is undulating, and, towards the mountains, hilly.

This plain is separated from Sinde by the Hala Mountains, and by another chain from Mukran. This latter branches off from the upland region to the north of 26° N. lat., and runs in a south-western and southern direction to Ras Kutcherie, where it terminates on the shores of the bay of Sonmeany. On this chain a Hindoo pagoda, called Hinglatz, stands, from which it receives the name of Hinglatz Mountains. Two passes lead over this range, one at the temple, called the Hinglatz Pass, and the other farther to the north near Bela, called Bela Pass. Two passes likewise traverse the Hala Mountains, one not far from the coast leads to Kurachee, and the other farther to the north to Hyderabad. There is one pass to the upland, which is called Kohun Wat, or 'the mountain road.'

The whole coast of this province lies on the bay of Sonmeany, which is formed on the east by Ras Mooaree and Chilney Island, the Bibacta of Nearchus, and on the west by Cape Arubah, or Oremarsah in Mukran. It is a large sheet of water, said to be free from rocks or shoals, and contains a good port, named by Nearchus Port Alexander. This bay receives the river Poorally, the Arabis of Nearchus, which rises north-east of Bela, runs along the base of the Jhalawan Mountains, and afterwards turns to the south, in which direction it traverses the plain and reaches the sea about two miles S.W. of the village of Sonmeany. At Lyaree, twenty miles N.N.E. of Sonmeany, it becomes navigable for small boats. At Bela it is only from fifteen to twenty yards wide, and a foot or two deep in the dry season, but during the rains it is a quarter of a mile across and unfordable. The bar at the mouth of the river has only two fathoms of water on it at low water, but near the village of Sonmeany the river is from six to seven fathoms deep. Bela, on the northern bank of the Poorally, has 2000 houses, and in its vicinity the sugar-cane is much cultivated. Lyaree has between 1600 and 1800 houses.

The countries which we have described are under the immediate or mediate sway of the khan of Kelat, and pay him obedience. In the remainder of Beloochistan his authority is only nominal.

The province of Meckran, or Mukran, called Gedrosia by the antient geographers, extends from the western boundary of Lus and Jhalawan, to the borders of Persia, and from the shores of the sea to the desert of Beloochistan. It is divided from this desert by a range of mountains, called the Wushutee, or Much Mountains, which run E. and W., and on the east are connected with the mountains of Jhalawan, on the west decline to the N.W. and join the mountain-region of Kohistan. Another range of mountains runs nearly parallel with the Wushutee Mountains, at a distance of from twenty to fifty miles from the sea, being on the east connected with the Hinglatz range, and on the west with the mountain-region called Bushkurd. None of these ranges seems to attain any great height. The southern range divides Mukran into two parts, the upland and coast, but both are very little known.

The upland of Mukran seems to consist of a succession of plains, divided from one another by ridges of hills or mountains, which, commonly running N. and S., connect the two mountain-ranges which form its boundary. The soil of these plains generally consists of bare rock, and large tracts, according to Arrian, are covered by sand. (*Anab. Alex.* vi. 24, &c.) It is observed, that whenever these plains exceed ten or twelve miles in width, they are found to be little better than complete deserts, except at the immediate base of the hills which bound them, where they are cultivated. Most of these plains, however, do not seem to be at a great elevation above the level of the sea, because nearly in all of them the date-palm grows, and produces such excellent fruit, that Mukran is noted for it. The best are those of the valley of Punjgoor, situated nearly in the centre of the province.

The sea-coast consists of flat bare plains, very little elevated above high water-mark, which contain many salt-marshes, and extend to the base of the nearest mountains. They frequently show no trace of vegetation: Nearchus says (*Indike*, chap. 26) that the sheep which were supplied by the natives to the ships of Alexander had a fishy taste from being fed on fish, there being no grass in the country. The wretched mode of life of the inhabitants of this coast, to whom the Greeks gave the general name of Ichthyophagi, or Fish-eaters, is described by Nearchus (chap. 29).

The climate of Mukran and of Lus approaches to that of the intertropical countries: both provinces have four seasons, two wet, one hot and one cold. The first wet season begins in February or March, and lasts only two or three weeks; the wind blows from N.W. The second wet season comes on with the south-west monsoon, and continues through June, July, and August. These wet seasons are particularly favourable to the growth of grass, and change many tracts into pasture ground. The hot season begins after the rain in spring, and continues till October, those months excepted in which the south-west monsoon blows. The heat is sometimes so excessive, as to prevent even the natives from venturing abroad during the days called the Khoorma Puz, or 'date ripening,' which takes place in August. The cold season lasts from December to February, but even then the air is warmer than at any time in the upper parts of Jhalawan and Sarawan. During the hot season the winds blow continually from the sea inland, and though they are seldom known to be fatal to animal life, they destroy vegetation.

No part of Beloochistan suffers more from scarcity of water than Mukran, except the desert. Owing to the comparatively small elevation of the mountains, the hard nature of the rocks of which they consist, their bareness of vegetation, and the stony and sandy surface of the plains, the abundant rain which descends is not absorbed, and no permanent streams are formed. During the rain the water-courses are changed in a few hours into rapid torrents, frequently several miles wide, but a few days afterwards they dwindle down to insignificant brooks, and in the dry season they entirely cease to flow, and water is found only in a few places in their beds. These beds are usually overgrown with thick and impervious jungle, which supply food for camels and goats, and harbour many different descriptions of wild beasts.

The river Suduck forms a small harbour at its mouth, a mile from which is the village Pusunee, a place of some trade.

The river Dust, or Dustee Nuddee, or Bhugwur, is a small river at its mouth, but it is supposed that it runs a distance of six or seven degrees of latitude in a direct line to the coast, and that the water from its northern extremity traverses little less than a thousand miles. It seems to be the same river, which, under the name of Boodoor, traverses the desert of Beloochistan, and in Sarawan is called Bale.

Kedge, which is considered the principal town of Mukran, is a little place on the Dust river, with a small fortress on a high rock.

At the western extremity of Mukran stands an extensive mass of mountain-ridges, which seem to rise to a considerable elevation, and to enclose high and cold valleys. They are not fit for agriculture, and are inhabited only by herdsmen. This mountain-district is called Bushkurd.

The mountains of Kohistan, which occupy the northern corner of Beloochistan, are connected with those of Bushkurd by a range, which attains a considerable height and divides the plain of Mukran (more especially that of Kussurkund, which is twenty-five miles long and nearly as broad), from that of Lushar and Bunpoor, which form the plain (or Mygadee) of Kohistan. These plains are similar to those of Mukran, and produce dates in abundance. The sandy desert of Bunpoor, which extends westward, divides these plains and the mountains of Bushkurd from the Persian province of Kirman.

The northern half of the province of Kohistan and the contiguous districts of Mukran constitute another mountain-system, called the Surhud Mountains (or cold mountains), on account of their elevation. Between 29° and 30° N. lat., they are visible at the distance of eighty or ninety miles. Their declivities and lateral branches towards the desert of Beloochistan are covered with trees, and contain many fertile districts and valleys, with a black loamy soil; and even some of the loftiest mountains have fine earth to their very summits. But the western declivities and branches are commonly nothing but a black rock destitute of verdure. These mountains are rich in mineral productions. There are several brooks of brine, and some pools of water are covered with a scum similar to naphtha. Iron, copper, and other metals are plentiful, and worked enough to supply the consumption of the inhabitants. Sal-ammoniac is the native product of a mountain called Koh i-Noushadir (or the hill of sal-ammoniac), and found in the fissures of the rock. Brimstone is plentiful.

The climate of this mountain-tract resembles in some measure that of Sarawan and Jhalawan, but is much milder. It partakes of the rains of the south-west monsoon, but these rains, which in Mukran are always regular, are here often partial, and at other times so heavy as to destroy the crops; in either case they are followed by a famine. The Kohukee, or hilly part of Kohistan, contains no place of note. In the Mydanee or plain, the town of Puhra, which contains 400 houses, is the largest.

The desert of Beloochistan extends to the north of the Wushutee range, between the provinces of Sarawan and Kohistan, and measures, E. and W., about 200 miles. No northern boundary can be assigned to it, since it continues northward to the banks of the Hilmend river, where it is called the desert of Sejestan. Nearly in the middle it is traversed from N. to S. by a river called Boodoor, which flows southward towards the coast, and on both sides of it the desert presents a different aspect. On the east the surface is covered by a very light and red sand. This sand is thrown by the wind into an irregular mass of waves running principally E. and W., and varying in height from ten to twenty feet. Most of these waves rise perpendicularly on the opposite side to that on which the prevailing wind blows, and when seen from a distance they resemble a new brick wall. The side facing the wind slopes off with a gradual declivity to the base of the next windward wave, or near to it, and a hollow or path is thus formed between the waves. It is difficult, and in some cases impossible, to ascend the leeward or perpendicular face, even for camels Only two plants have been observed growing on this sand. To the west of the river Boodoor the surface is covered with a hard black gravel, on which no trace of verdure is seen; nor even the most trifling irregularity in the surface. The bed of the river is covered with a thick jungle of different kinds of trees and brushwood, the haunt of wolves, jackals, and other wild animals. The sultry air on this desert is frequently refreshed by tornados, accompanied by torrents of rain, which fall in extremely large drops, but are immediately absorbed. Without these tornados it would be impossible to pass through the desert at any season; and from June to September it cannot be traversed, notwithstanding the prevalence of these gusts, for in this season the winds are so scorching and destructive as to kill both animals and vegetables. They are called *Julot* or *Julo*, 'the flame,' or Badé Sumoom, 'the pestilential wind.' This description reminds us of the difficulties experienced by the army of Alexander in traversing the sandy deserts of Gedrosia. (Arrian, vi. 23, &c.)

It is difficult to guess what portion of Beloochistan is available for agricultural purposes: it is however certain that not one-hundredth part is actually under cultivation. The districts fit for pasture are much more extensive, but both together do not probably amount to one-tenth of the whole surface, even if the desert is not taken into the account. Yet the inhabitants display ingenuity and industry in some branches of agriculture.

All kinds of grain known in India are cultivated in Beloochistan, as rice, wheat, barley, bajree (*holcus spicatus*), jawaree, moong (*phaseolus mungo*), maize or Indian corn, dal (vetch), mutter (a kind of pea), til (*sesamum*), and chunna (*cicer arietinum*). Rice will not grow in Gundava.

About Kelat a great variety of vegetables are cultivated, turnips, carrots, cabbages, lettuces, cauliflowers, peas, beans, radishes, onions, celery, parsley, garlic, egg-fruit, cucumbers. Madder is cultivated with great care in the districts north and east of Kelat, cotton in great abundance in Kutch Gundava, and indigo in different places. The sugar-cane grows chiefly on the plains of Luss.

The upland country about Kelat abounds in all fruits grown in the countries of Europe, as apricots, peaches, grapes of various kinds, almonds, apples, pears, plums, currants and cherries, figs, pomegranates, mulberries, melons, to which pistachio-nuts, plantains, and guaivas are to be added. The water-melons attain such a size, that one man is unable to raise them. The almonds are excellent in the northern districts of Shawl and Moostoong. The lower countries have other kinds of fruits, especially the date, which is cultivated with great care in Mukran, where it is considered as the best gift of heaven; the value of these trees is much enhanced by their thriving best in a gravelly and barren soil.

The numerous herds of cattle require much fodder, and the culture of artificial grass is not neglected. It does not, however, extend farther than to the culture of oushpoosh, or camel grass, a peculiar kind of clover, which grows with a stalk a foot or two high, and has leaves like shamrock.

The sides of some mountains are covered with trees, and they are also found in the jungle, which generally covers the wide bed of the rivers. The best timber is produced by hetupoors (a species of *Zizyphus Jujuba*) and the tamarind trees. The former resemble teak, and are very hard. Most of the trees of this country are not known in Europe, and many of our trees, as the oak, ash, fir, &c. are unknown there.

The domestic animals consist of horses, mules, asses, camels, dromedaries, buffaloes, sheep, goats, dogs, and cats. The horses are strong, well boned, and large, especially to the south of Kelat, and in Kutch Gundava; in Luss and Mukran they are small, and deficient in spirit. Sheep are mostly of the flat-tailed kind. Among the domestic animals the camel and dromedary are most highly prized, especially the dromedaries, on account of their fitness for the long and remote marauding expeditions to which the inhabitants are so prone. Camels are not found in the lowland countries.

Of wild animals there are lions, tigers, leopards, hyenas, wolves, jackals, tiger-cats, wild dogs, foxes, hares, mongooses, mountain-goats, antelopes, elks, red and moose deer, wild asses, &c. The wild-dogs are numerous and ferocious. They frequently hunt in packs of twenty or thirty, and will seize a bullock and kill him in a few minutes; but being timid, they keep in the most impenetrable jungles. Lions and tigers are rare. The hyena alone attacks man, but only when urged by severe hunger, or when irritated.

Of domestic birds only fowls and pigeons occur: there are no geese, turkeys, or ducks. Of wild birds almost every kind known in Europe and India is met with, and the bustards, jungle-fowls, and black partridges are very numerous. Hawking is a favourite pastime with some of the chiefs in the western districts, and they pay great attention to the instruction of their birds.

In some of the larger rivers, especially in the Poorally, fish are plentiful at some places: and the few inhabitants of the sea-coast gain their chief subsistence by fishing: but it does not seem that fish are abundant along the shore.

Gold and silver are found in Jhalawan, in the mines near the town of Nal, not far from Khozdur, where these metals have been discovered in working for iron and lead. They are not, however, extracted from the ore at the place, but are sent in their native state to the Punjaub. Lead, iron, copper, tin, antimony, brimstone, alum, and many kinds of mineral salts and saltpetre, occur in various places. Saltpetre is dug up in some places in a native state, but at Kelat is extracted from the earth, and is preferred to that which is found pure. Rock-salt is very common in Kohistan.

As many parts of Beloochistan have never been visited by observing travellers, we are very imperfectly acquainted with the races of men that inhabit this extensive country. We know only those which live in the eastern and northern districts, the Belooches and the Brahooes, who differ considerably in their figure and language, and partly also in manners and character.

The Belooches are a tall, active race of men, not possessing great physical strength, but adapted and inured to changes of climate and season, and accustomed to undergo every species of fatigue. They have a long face and prominent features, a dark complexion, and black hair. The Brahooes are short and strong-boned; their faces are round, and their lineaments flat: numbers of them have brown hair and beards. Their external appearance reminds us of the Mongol race. In activity, strength, and hardiness, few people surpass them; and they are both inured to the cold of the mountainous regions of Beloochistan and the hot plains of Kutch Gundava.

The Beloochee language partakes considerably of the idiom of modern Persia, and at least one-half of the words are borrowed from that language, but greatly disguised under a corrupt pronunciation. Lieutenant Pottinger, after travelling for some time among them, was enabled, by his knowledge of the Persian language, to understand almost every sentence spoken by the Belooches in their own tongue. The language of the Brahooes is quite different from the Persian; but it contains a great number of Hindoostanee words, and strongly resembles as to sound the Punjaubee, or the dialect spoken in the Punjaub.

The Belooches are subdivided into three principal tribes, the Nharooes, Rhinds, and Mughsees, of which the first are the most distinguished. They inhabit the mountains of Kohistan exclusively, and are settled in considerable numbers in the eastern upland country to the north and south of Kelat. The other two tribes have settled in Kutch Gundava, where they are incorporated with the Juths, or cultivators of the soil. The Belooches, but especially the Nharooes, consider private theft dishonourable and disgraceful, but the plunder and devastation of a country are viewed as highly honourable actions; and accordingly they are much addicted to predatory incursions, which they execute with surprising activity and quickness. Their manners are pastoral. They usually reside in ghedans or tents, made of black felt or coarse blanket, stretched over a frame of wickerwork. An assemblage of such ghedans is called a toomun, or village, and its inhabitants constitute a kheil, or society. Like all other pastoral nations, they are hospitable, indolent, and fond of hunting. Unless occupied by some favourite amusement, they will spend whole days in lounging from one ghedan to another, smoking and gambling. They have commonly two wives, and sometimes more. They treat their women with attention and respect, and are not so scrupulous about their being seen by strangers as most Mohammedans, although they by no means allow them to appear in public at all times. They are avaricious, revengeful, and cruel.

The Brahooes, who principally inhabit the province of Jhalawan, and are also dispersed towards the north as far as the desert, are a still more unsettled wandering nation, always residing in one part of the country during the summer, and emigrating to another during the winter season: they likewise change their immediate places of abode many times every year in quest of pasturage for their flocks, a practice which is rare among the Belooches. But many of them are husbandmen, and laborious hard-workers. On the plains to the south of Kelat they till large tracts of land, and sell grain, cheese, and ghee, with a few coarse blankets, carpets, and felts. They are not less hospitable, nor less faithful in adhering to their promises, than the Belooches; but they are more quiet and industrious; less inclined to rapine and violence, though at least equal in bravery; and their manners are mild and inoffensive, though uncivilized and uncouth. They are grateful and faithful, and exempt from revenge, cruelty, and avarice. The task of the family is divided among both sexes, nearly as in most countries in Europe. The men tend the flocks and till the ground: the women are occupied in milking, making butter, cheese, and ghee, and working carpets, felts, and coarse white cloth. Both sexes mingle more together than is usual in the countries of western Asia. Both nations are Soonee Musulmans, and consequently many of their usages are regulated according to the precepts of the Koran.

The Dewars and Juths live dispersed among these two nations, the former about Kelat, the latter in Kutch Gundava. The Dewars, or Dehkans (*i. e.* the villagers), are agriculturists, and do not migrate. They speak the common pure Persian. In stature they are below the middle size, with blunt features, high cheek-bones, and full cheeks. They are quiet and harmless in their disposition, and civil and obliging to strangers, but not given to hospitality.

The Juths, who form the great bulk of the population of Kutch Gundava, show, by their manners, appearance, and customs, that they are descended from the aboriginal Hindoos. The Juths, like the Dewars, have been converted to the Mohammedan faith.

The inhabitants of Luss speak a language similar to that of Sinde, and strongly resemble the Hindoos, especially in their apathy and the want of energy in their countenances.

The inhabitants of the sea-coast of Mukran are a puny and delicate race, when compared with the Belooches and Brahooes. Their blacker complexion may probably be attributed to their frequent intermarriages with the Arabs of the opposite coast. In the interior of Mukran some pastoral tribes wander about, but we hardly know anything of them, as well as of the pastoral inhabitants of Bushkurd. In the towns and places of commerce a great number of Hindoos are settled as merchants, and they are commonly the wealthiest inhabitants.

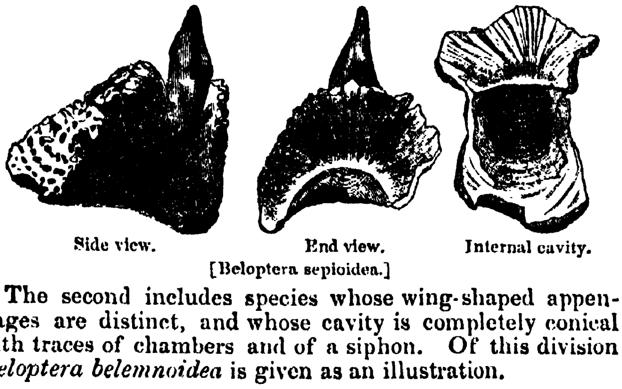
The commerce of Beloochistan is not of much importance. It exports grain from Kutch Gundava and Luss, dates from Mukran, and horses from Kelat and Gundava. The imports consist principally of some metals, spices, and manufactured goods of silk and cotton; to which salt from Moultan may be added.

The government of Kelat is despotic, but limited by a feudal system. The sirdars or chiefs of the tribes are bound to furnish their quota of soldiers, and to attend the court. They are partly hereditary, and partly chosen by the tribes themselves. In the western districts the authority of the khan is only nominal; and government is in the hands of the sirdars, who are commonly chosen by the people, but do not enjoy extensive authority. The tribes here are, properly speaking, a number of petty republics, in which every member feels that he has a right of revenging his own wrongs, and of giving his vote on all matters of public interest. (Pottinger, *Travels in Beloochistan and Sinde;* Conolly's *Journey to the North of India,* &c.; Burnes's *Travels to Bokhara; Map of Central Asia,* by Arrowsmith.)

BELOPOL or BYELO-POLYE, the capital of a circle in the province of Charkoff, in European Russia, at the confluence of the Vira and Kriga, tributaries of the Seim; it is of modern date and surrounded by a rampart of earth and a moat. It contains eight churches of wood, nearly 800 houses, besides forty-six wooden storehouses, had in 1783 a population of 9050 souls, mostly of the agricultural class, which has now increased to about 10,000: it has extensive distilleries of brandy, and has yearly markets, but it is not a place of much trade or of any note for operative industry. It is about 140 miles (212 versts according to Georgi) to the N.W. of Charkoff, in 51° 5′ N. lat., and 34° 35′ E. long.

BELO'PTERA, in zoology, a fossil genus established by Deshayes and described by Blainville as an animal entirely unknown, containing in the back part of its muscular envelope a symmetrical calcareous or bony shell, formed of a thick solid summit very much loaded behind, and a front tube more or less complete, the cavity of which is conical and annular, the shell or bone having wing-shaped appendages without any anterior shield-like prolongation.

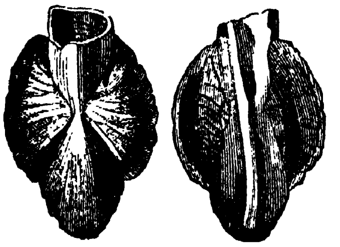
De Blainville divides the genus into two sections. The first consists of species whose wing-shaped appendages are united below the summit, and whose cavity is somewhat in the shape of a scuttle (*hotte*); of this section *Beloptera sepioidea* is given as an example.



Side view. End view. Internal cavity.

[Beloptera sepioidea.]

The second includes species whose wing-shaped appendages are distinct, and whose cavity is completely conical with traces of chambers and of a siphon. Of this division *Beloptera belemnoidea* is given as an illustration.



[Beloptera belemnoidea.]

De Blainville observes that this genus ought to be placed at the end of the *sepiacea* or *cuttles;* and that the first of the species is evidently very much allied to the bones of those animals, while the second approaches the *belemnites.*

After all, the probability is, that these bodies are only portions of the bones of some of the cuttle-fishes; and this appears to have been the opinion of Cuvier.

If a perfect bone of the common species of our coasts be closely examined, a structure very analogous to the conical circularly-grooved cavity of *Beloptera,* although in a more expanded form, will be observed. These fossils have been found in the London clay, and other beds above the chalk.

Voltz, in his memoir on Belemnites, makes *Beloptera sepioidea* a distinct genus under the name of *Belosæpia.*

BELOSÆPIA. [See BELOPTERA.]

BELSHAM, THOMAS, a dissenting minister of the Unitarian persuasion, was born at Bedford, April 15, 1750, O.S. On his mother's side he was descended from the Earl of Anglesey: his father, the Rev. James Belsham, was a man of classical attainments. Two of his Latin poems, *Mors Triumphans* and *Canadia,* have been praised by competent judges. This gentleman, intending to bring up his son Thomas to his own profession, placed him under the care of eminent schoolmasters until he was of an age to be sent to the Dissenting Academy at Daventry, then under the superintendence of Dr. Ashworth, where he was a student for five years. By the time his studies were completed, his talents and acquirements attracted such notice that he was appointed assistant tutor, an office which he continued to fill for seven years. Being then desirous of entering upon the duties of his profession, he spent three years, in connexion with a congregation of Protestant Dissenters, at Worcester, where he was greatly esteemed for his learning and urbanity, and was so much attached to the society of the place, that he yielded with reluctance to the importunity of his friends who were desirous of placing him at the head of the academy at Daventry. He returned to this place in 1781, in the capacity of theological tutor and head of the institution, which situation he held till 1789. In addition to the labours which devolved upon him in the institution, he became the minister of the Society of Protestant Dissenters in the town, and in both capacities he was so eminently successful, that he might probably have continued in them during the remainder of his life, but for a change which took place in his religious opinions. He had been educated in the doctrines of Calvinism, but having embraced Unitarianism, he relinquished his connexion both with the academy and with his congregation. About this time, a new college being established at Hackney by those Dissenters who were friendly to unrestrained religious inquiry, it was placed under the direction of Mr. Belsham, but, in a few years, it sunk for want of funds to support it. Before this event took place he was chosen to the vacant pulpit of Dr. Priestley, by the Gravel Pit congregation, where he again entered upon those exertions which were most congenial to his tastes. Eleven years afterwards, in 1805, on the death of Dr. Disney, the colleague and successor of Mr. Lindsey, Mr. Belsham removed to Essex Street Chapel, London, of which he continued the pastor during the rest of his life.

From the time that Mr. Belsham avowed his conversion to the doctrines held by the Unitarians, he espoused their cause with great zeal, and advanced it by applying his talents and learning to its defence. One of his earliest publications was *A Review of Mr. Wilberforce's Treatise, entitled A Practical View of the prevailing Religious System of Professed Christians*, &c., 1798, in which it was the writer's design to place the theological doctrines maintained by the amiable and eloquent author of the 'Practical View,' in contrast with those professed by Unitarians. In 1811 he gave to the public the results of his investigations on the most important subject that had ever occupied his mind, in a work entitled *A Calm Inquiry into the Scripture Doctrine concerning the Person of Christ*. His single sermons, on subjects chiefly suggested by public events, would make up several volumes, and his controversial writings are numerous. There is hardly any branch of theology, or of the doctrines or evidences of revelation, on which Mr. Belsham has not published his thoughts. His *Evidences of the Christian Revelation* is a powerfully argumentative and sometimes eloquent work, which had a large sale, and was perhaps the most popular of his performances. His last work, and that, perhaps, on which his reputation must rest, was *A Translation of the Epistles of Paul the Apostle, with an Exposition and Notes*. He had been previously employed on a work of which he is now known to have been the editor,—*The Improved Version of the New Testament*. But Mr. Belsham's literary works were not exclusively theological. In 1801 he published *Elements of the Philosophy of the Human Mind and of Moral Philosophy*. As a follower of Hartley, he resolved all mental phenomena into the association of ideas. His theory of morals supposes the ultimate happiness to harmonize with the greatest general good, and he concludes that 'self-love and benevolence can only be reconciled by religion.' Besides his numerous obituary sermons, he published *Memoirs of the late Rev. Theophilus Lindsey, M.A., including a Brief Analysis of his Works, &c.*, 1812, a piece of biography both interesting and useful. In the same tomb which contains the remains of this venerable pastor rests Mr. Belsham, whose proudest boast it was to be, as he is described on the stone which covers it, 'the friend, associate, and successor of Priestley and Lindsey.'

(See *Memoirs of the late Rev. Thomas Belsham*, by John Williams, 8vo. 1833.)

BELSHAM, WILLIAM, an active writer on politics and history, brother of Thomas Belsham, was born in 1752, and died November 17th, 1827, at Hammersmith. He resided at one period at Bedford, and was intimately acquainted with several of the most celebrated public men belonging to the Whig party, to whose politics he was strongly attached. His literary career commenced in 1789, by the publication of a series of 'Essays, Historical, Political, and Literary,' in 2 vols. 8vo. These were followed by Letters and Essays, published at various periods, on the Test Laws, the French Revolution, the Distinction between the Old and New Whigs, Parliamentary Reform, and the Poor Laws. In 1793 he published, in 2 vols. 8vo., 'Memoirs of the Kings of Great Britain of the House of Brunswick-Lunenberg.' In 1795 he again appeared as an historical writer, by the publication of 'Memoirs of the Reign of George III., to the Session of Parliament ending 1793,' in 4 vols. 8vo. To these were added the 5th and 6th volumes, in 1801. In 1798 he published, in 2 vols. 8vo., a 'History of Great Britain from the Revolution to the Accession of the House of Hanover;' and in 1806 his historical works were published in a uniform edition in twelve 8vo. volumes, under the title of 'History of Great Britain to the Conclusion of the Peace of Amiens in 1802.' He was also the author of the following miscellaneous works. In 1797 'Two Historical Dissertations: 1. On the Means of the Ministerial Secession in 1717. 2. On the Treaty of Hanover, 1725,' being a reply to some animadversions contained in Coxe's Memoirs of Sir Robert Walpole. In 1798 'Two Historical Dissertations on the Silesian War, and on the Character and Conduct of Louis XVI.' In 1800 a 'Reply to Herbert Marsh's Vindication of the History of the Politics of Great Britain and France;' and in 1801 'Remarks on a late publication, styled "The History of the Politics of Great Britain and France."' In 1802 'Remarks on the Peace of Amiens.' He was also the author of a volume on the 'Philosophy of the Mind,' 'Letters to Wilberforce,' and a 'Chronology of the Reigns of George III. and IV.' (Watt's *Bibliotheca Britannica*.)

BELSHAZZAR (בֵּלְשַׁאצַּר or בֵּלְאשַׁצַּר, Βαλτάσαρ) was the last king of Babylon of the Chaldæan dynasty. He is the Nabonnedus of Berosus, Nabenadius of the Canon Ptolemæi, Nabodenus of Alexander Polyhist., Nabonnidochus of Megasthenes Abydenus in Euseb. Chron. Arm., Labynetus of Herodotus, Naboandelus of Josephus. Belshazzar was the son of queen Nitocris. He perished 538 or 539 before Christ, in the seventeenth year of his reign, in the night when Babylon was stormed by Cyrus whilst the attention of the court was engaged by a splendid festival.

According to Berosus, as quoted by Josephus, Belshazzar being defeated in battle against Cyrus, escaped to Borsippa, where he surrendered and was graciously received by Cyrus, who sent him to Carmania, where he lived to the end of his days. But this account of Berosus, who makes various incredible statements, is inconsistent with the testimony of the Bible. Herodotus, who describes the capture of Babylon by Cyrus, says nothing of the death of Belshazzar: the account of Xenophon in his *Cyropædia*, which is not of course considered as historical authority, says that the king was killed, but he does not mention his name.

According to יוסיפון בן גוריון (ed. Breithaupt, p. 26), one of the eunuchs having heard Daniel's interpretation of the MENE MENE TEKEL UPHARSIN, Dan. v. 25, in the following night cut off Belshazzar's head and brought it to Cyrus and Darius, who besieged Babylon. Cyrus adored God, and resolved to restore the Jews to their country and to rebuild the temple at Jerusalem.

(See Dan. chap. v. and vii.: Is. xiii. 14: Comp. Jer. v. 31, 41; Josephi *Ant.* x. 11, 2; Apion. i. 20; Eusebii, *Chron. Armen.* i. p. 45, and pp. 60, 61, 72; Eusebii *Præparatio Evangelica*, ix. 41; Herodotus, i. 77, 188, 191; Xenophon, *Cyropædia*, vii. 5; Bernholdi *Dissertatio in Dan.* v. Altorf. 1740, 4to.; Opferhaus Spicil. *Hist. Chron.* 263, &c.; Usserii *Annales* to the year 3448; Hartmann *Syst. Chron.* 342, seq.; Jahn's Einleitung ii. i. 216; Berthold 4, *Exc. zum Daniel*, pp. 848, 856.)

Marsham took Belshazzar for Evilmerodach. (*Can. Chron.* 597.) Gatterer (*Handbuch der Universalgeschichte*, i. p. 293) took him for Laborosoarchod, the son and successor of Neriglissar. George Syncellus took him for Neriglissar himself. (*Chron.* pp. 223, 230; comp. Cedren. *Hist.* p. 113.

The history of Belshazzar has been a favourite subject for poets and artists: the painting of Belshazzar's Feast by Martin, and the dramas of Milman and Hannah More on this subject, are well known.

The Assyrio-Babylonic name given to Daniel at the court of Nebuchadnezzar was בֵּלְטְשַׁאצַּר, Beltshazzar. (Dan. i. 7, ii. 26, iv. 5, vi. 15, x. 1.) The names of the sovereign and the favourite indicate the esteem in which Bel was held, and mean the *Prince of Bel*, i. e. *Prince whom Bel favours*.

BELSK or **BYELSK**, the chief town of a circle of that name in the province of Bialystok in western Russia, and formerly the capital of the Polish voyvodeship of Podlachia, is a neat, well-built, paved town on the Biala, a small stream which traverses the fertile country that lies around it. It has two Roman Catholic churches and a united Greek and Carmelite monastery; but the population, which is once said to have been 5000, is at present reduced to about 1800 souls, among whom are but few Jews, to whom Belsk has, among other privileges, that of refusing a settlement within its jurisdiction. 52° 40′ N. lat. and 20° 2′ E. long.; about twenty-three miles (thirty-five versts) south of Bialystok.

BELT, which in Danish, as in English, signifies a girdle, is the name given to two of the three straits by which the Baltic Sea is joined to the Cattegat. They are distinguished by the addition of Great and Little.

The *Great Belt*, which is the middle one of the three straits, and the widest outlet for the waters of the Baltic, begins on the south, about 54° 50′ N. lat., between the southern extremity of the island of Langeland and the western shores of Laaland, and terminates on the north between Rees Ness on the island of Zealand, and the southern extremity of Samsoe. Its length may be about seventy miles.

The narrowest part of the strait is at its southern extremity, where it is, properly speaking, divided into two straits by the island of Langeland; for the narrow sea between that island and those of Arröe, Taasing, and Fionia is comprehended under the name of Great Belt, and is hardly more than four miles in breadth. The principal branch between Langeland and Laaland is rather more than eight miles wide. To the north of the northern extremity of Langeland the breadth of the strait varies between sixteen and twenty-four miles.

Except near the shores the depth of the water is considerable, but very irregular, varying from five to twenty-five fathoms. But some small and low islands and many shoals render the navigation difficult and dangerous, and on that account the passage of the Sound is preferred. In the last war, however, English men-of-war commonly passed through the Belt. The merchant-vessels which pass through it are obliged to pay the customary duties at Nyborg or Nyeborg, on the island of Fionia. The shores on both sides of the strait, being low and irregular, form many good harbours and anchorages.

Between Nyborg in Fionia and Corsöer in Zealand, where the strait is only sixteen miles across, a regular communication is established by steam-boats and smacks. In the good season the passage is not difficult; but in the latter part of the autumn and in winter it is difficult and dangerous, especially on account of the pieces of floating ice which in severe weather become very numerous, and are sometimes cemented together by hard frost. It is then sometimes necessary to make one part of the passage in a sledge and the other in a boat. When in such circumstances snow begins to fall, the small island of Sprogöe, which lies in the strait, but considerably nearer to the coast of Fionia than to that of Zealand, offers a place of refuge. The Danish government has erected a building on this island for the reception of travellers.

The *Little Belt*, the most western of the three straits, begins on the south between the islands of Arröe and Alsen, and extends, between the island of Fionia and Jutland, to the Capes called Oger Ness on Fionia, and Bicornsknudde on Jutland. Its length is upwards of eighty miles, but its width varies considerably. Towards the southern extremity, between the islands Arröe and Alsen, it is generally above ten miles across. At Assens, a town of Fionia, it narrows suddenly to about five, and farther north it grows by degrees narrower, so that between the town of Middelfart on Fionia, and the opposite coast at Snoghöe, the distance hardly amounts to three-quarters of a mile. At Fredericia, where the vessels which pass the strait pay the customary duties, the strait is little more than a mile wide.

The depth of the water is considerable, varying from four to twenty-seven fathoms; but the navigation is dangerous, on account of the low islands (Aaröe, Baagöe, and Fanöe), the numerous shoals, and the violent currents which constantly run through the strait from south to north.

The shores of the island of Fionia are low; but on the mainland they rise in a few places, though nowhere to any considerable height. Regular places of passage are between Fredericia and Striib, and Snoghöe and Middelfart.

(Catteau, *Tableau de la Mer Baltique; Gliemann, Geograph. Description of Denmark;* and Pauly's *Topography of Denmark;* Gliemann's *Map*.)

BELTEIN, or **BELTANE**, the name of a kind of festival, formerly and probably still observed in Ireland and Scotland, in most places on the 1st of May. In some parts of the west of Scotland it is observed on St. Peter's day, June 29. In Ireland we find two belteins, one on the 1st of May, the other on the 21st of June. To the beltein, also, in all probability, the fires which were formerly and are perhaps yet lighted in many parts of England on Midsummer Eve, are to be referred.

Beltein signifies the fire of Baal, the worship of whom is supposed to have existed in England, Scotland, and Ireland in the remotest period of druidical superstition. The Phœnician Baal probably denoted the Sun [see Baal], as Ashtaroth did the Moon. Beltein was therefore the fire lighted in honour of the Sun, whose return and visible influence upon the productions of the earth was thus celebrated. *La na Beal tina*, and *neen na Beal tina*, in the Irish language, are the day and eve of Beal's fire. (*Fairy Legends and Traditions of the South of Ireland;* and MacCurtin's *English-Irish Dict.*, 4to. Par. 1732, p. 451.)

The following account of the beltein is given in *Focalóir Gaoidhilge-Sax-Bhéaria*, or an Irish-English Dictionary (by O'Brien), printed at Paris, 4to. 1768: '*Beiltine*, or *béil-tine*, ignis Beli Dei Asiatici: i. e. *tine-Beil*. May-day, so called from large fires which the Druids were used to light on the summits of the highest hills, into which they drove four-footed beasts, using at the same time certain ceremonies to expiate the sins of the people. This pagan ceremony of lighting these fires in honour of the Asiatic god Belus, gave its name to the entire month of May, which is to this day called *mi na Beal-tine* in the Irish language. Dr. Keating, speaking of this fire of Beal, says, that the cattle were driven through it and not sacrificed, and that the chief design of it was to keep off all contagious disorders from them for that year; and he also says, that all the inhabitants of Ireland quenched their fires on that day, and kindled them again out of some part of that fire. The above opinion about the cattle is confirmed by the following words of an old glossary, copied by Mr. Edward Lhuyd: *Da tene soinmech do guitis na drufthe contincet laib moraib foraib agus do berdis na ceatra entra or teomanduib cecha bliadna* the main sense of which is, that the Druids lighted two solemn fires every year, and drove all four-footed beasts through them in order to preserve them from all contagious distempers through the current year.'

In Sir John Sinclair's *Statistical Account of Scotland*, vol. xi. 8vo. Edinb. 1794, p. 620, the minister of Callander in Perthshire, speaking of 'peculiar customs,' says, 'Upon the first day of May, which is called Beltan or Beltein-day, all the boys in a township or hamlet meet in the moors. They cut a table in the green sod, of a round figure, by casting a trench in the ground of such circumference as to hold the whole company. They kindle a fire, and dress a repast of eggs and milk in the consistence of a custard. They knead a cake of oatmeal, which is toasted at the embers against a stone. After the custard is eaten up, they divide the cake into so many portions, as similar as possible to one another in size and shape, as there are persons in the company. They daub one of these portions all over with charcoal, until it be perfectly black. They put all the bits of cake into a bonnet. Every one, blindfold, draws out a portion. He who holds the bonnet is entitled to the last bit. Whoever draws the black bit is the devoted person who is to be sacrificed to Baal, whose favour they mean to implore, in rendering the year productive of the sustenance of man and beast. There is little doubt,' the writer adds, 'of these inhuman sacrifices having been once offered in this country as well as in the East, although they now pass from the act of sacrificing, and only compel the *devoted* person to leap three times through the flames, with which the ceremonies of this festival are closed.'

The minister of Logerait, in Perthshire, gives a similar account (*Ibid.* vol. v. p. 84) of the celebration of the beltein in his parish. He says, 'On the 1st of May, O. S. a festival called Beltan is annually held here. It is chiefly celebrated by the cow-herds, who assemble by scores in the fields to dress a dinner for themselves, of boiled milk and eggs. These dishes they eat with a sort of cakes baked for the occasion, and having small lumps, in the form of nipples, raised all over the surface. The cake might, perhaps, be an offering to some deity in the days of Druidism.'

Mr. Pennant's account of this rural sacrifice is more minute. He tells us, that on the 1st of May, in the Highlands of Scotland, the herdsmen of every village hold their Bel-tein. 'They cut a square trench in the ground, leaving the turf in the middle; on that they make a fire of wood, on which they dress a large caudle of eggs, butter, oatmeal, and milk, and bring, besides the ingredients of the caudle, plenty of beer and whiskey: for each of the company must contribute something. The rites begin with spilling some of the caudle on the ground, by way of libation; on that, every one takes a cake of oatmeal, upon which are raised nine square knobs, each dedicated to some particular being, the supposed preserver of their flocks and herds, or to some particular animal, the real destroyer of them. Each person then turns his face to the fire, breaks off a knob, and, flinging it over his shoulders, says, "This I give to thee, preserve thou my horses;" "This to thee, preserve thou my sheep;" and so on. After that they use the same ceremony to the noxious animals: "This I give to thee, O fox! spare thou my lambs;" "This to thee, O hooded crow!" "This to thee, eagle!" When the ceremony is over, they dine on the caudle; and, after the feast is finished, what is left is hid by two persons deputed for that purpose; but on the next Sunday they re-assemble, and finish the reliques of the first entertainment.' (Pennant's *Tour in Scotland*, 8vo. Chester, 1771, p. 90.)

General Vallancey, in his *Essay on the Antiquity of the Irish Language*, 8vo. Dublin, 1772, p. 19, noticing the 1st of May, says, 'On that day the Druids drove all the cattle through the fires, to preserve them from disorders the ensuing year. This pagan custom is still observed in Munster and Connaught, where the meanest cottager worth a cow and a wisp of straw practises the same on the first day of May, and with the same superstitious ideas. (See also the *Survey of the South of Ireland*, p. 233.)

Jamieson, in his *Etymological Dictionary of the Scottish Language*, vol. i. in voce, says, 'In Ireland Beltein is celebrated on the 21st of June, at the time of the solstice.' This is beyond a doubt a second festival of Beltein. He adds, 'There, as they make fires on the tops of hills, every member of the family is made to pass through the fire; as they reckon this ceremony necessary to ensure good fortune through the succeeding year.' Beltein, he says, is also observed in Lancashire. Hutchinson, in his *History of Cumberland*, vol. i. p. 77, speaking of the parish of Cumwhetton, says, 'They hold the wake on the eve of St. John, with lighting fires, dancing, &c. The old Belteing.'

In Sir John Sinclair's *Statistical Account of Scotland*, 8vo. Edinb. 1792., vol. iii. p. 105, the minister of Loudoun in Ayrshire says that the custom amongst the herds and young people to kindle fires in the high grounds in honour of Beltein is now kept there on St. Peter's day, that is June 29th.

The practice of lighting fires on Midsummer eve in England, in honour of the summer solstice, is fully illustrated by Brand, in his *Popular Antiquities*, vol. i. p. 238, et seq.

Jamieson says, 'Although the name of Beltein is unknown in Sweden, yet on the last day of April, i. e. the evening preceding our Beltein, the country people light great fires on the hills, and spend the night in shooting. This with them is the eve of Walburg's Mess. The first of May is also observed.'

BELTIRS, THE, a small horde of Tartar extraction, who dwell along the banks of Abakan, in the Russian province of Tomsk, in Siberia. In features and dialect they most resemble the Sagay-Tartars; like them they are heathens, and only differ from them in the custom they have of never burying their dead, whose bodies they suspend to large trees: for this purpose they select the most secluded and unfrequented spot they can find, and hang up the corpse in a deal coffin, after placing the most valuable garments of the deceased, as well as his household utensils, some victuals, and a saddle, in the coffin. In general they have two wives, and their refusal to abandon this habit is said to be the only bar to their conversion to Christianity. They bring their tribute to the Russian government, to the fortified town of Kuznezk, where all differences that may arise between them are adjusted. Their numbers do not exceed 150 bows and arrows, or males of mature age; at least, this is the quota for levy of the tribute. (Georgi and Vsevolovsky.)

BELTS, JUPITER'S. [See JUPITER.]

BELTURBET, in the barony of Loughtea, and county of Cavan, on the river Erne, sixty-one miles N.W. by W. from Dublin. The town formerly returned two members to the Irish parliament. It is a corporate town, governed by a provost, and is chiefly the property of the Lanesborough family. There is extensive commonage in the environs, and turbary attached to each holding. Here is a good market-house, with sessions-house above; and a spacious church, in the church-yard of which there are the remains of an extensive fortification. The water communication to Ballyshannon is complete, and might be opened to the sea at comparatively little cost, and with immense advantage to both the county Cavan and Fermanagh. In 1821 the population of Belturbet was a little above 2000: it does not seem to have increased within the last ten years. In 1824 there were in the town four schools, and altogether in the parish eleven, educating 310 males and 238 females. (*Stat. Surv. of County Cavan*; Pettigrew and Oulton's *General Register*; *Commissioners' Reports.*)

BELU'GA. [See STURGEON.]

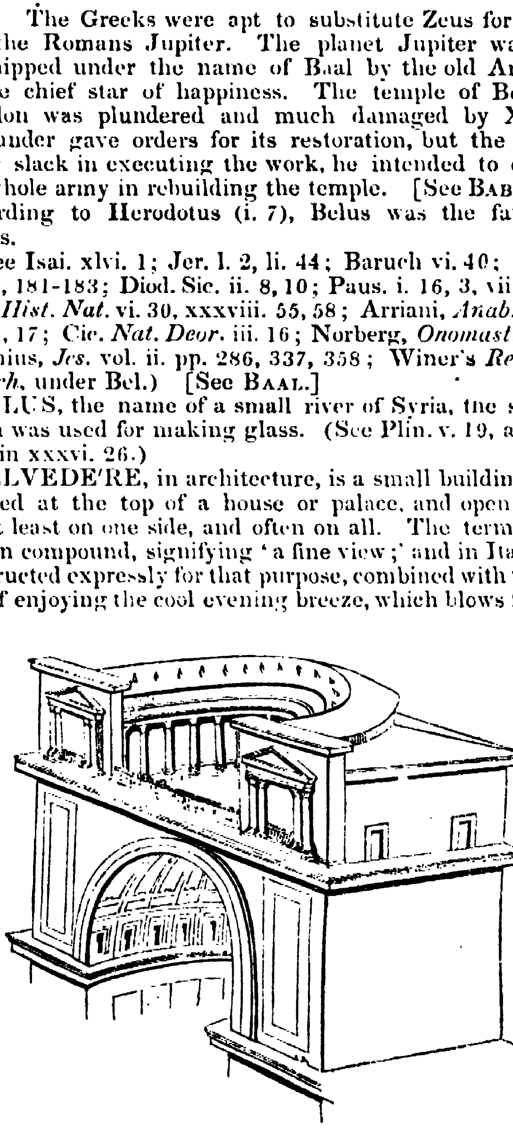
BELUR TAGH. [See BOLOR TAGH.]

BELUS (בֵּל or בְּעֵל, βῆλος) was the name of the chief deity of the Babylonians and Assyrians. The Chaldee *Bel* (בְּעֵל), as well as the Hebrew *Baal* (בַּעַל), means *Lord.* The Greeks were apt to substitute Zeus for Belus, and the Romans Jupiter. The planet Jupiter was also worshipped under the name of Baal by the old Arabians as the chief star of happiness. The temple of Belus at Babylon was plundered and much damaged by Xerxes. Alexander gave orders for its restoration, but the priests being slack in executing the work, he intended to employ the whole army in rebuilding the temple. [See BABYLON.] According to Herodotus (i. 7), Belus was the father of Ninus.

(See Isai. xlvi. 1; Jer. l. 2, li. 44; Baruch vi. 40; Herod. i. 178, 181-183; Diod. Sic. ii. 8, 10; Paus. i. 16, 3, viii. 33, 1; Plin. *Hist. Nat.* vi. 30, xxxviii. 55, 58; Arriani, *Anab.* iii. 16, vii. 16, 17; Cic. *Nat. Deor.* iii. 16; Norberg, *Onomast.* p. 28; Gesenius, *Jes.* vol. ii. pp. 286, 337, 358; Winer's *Realwörterbuch*, under Bel.) [See BAAL.]

BELUS, the name of a small river of Syria, the sand of which was used for making glass. (See Plin. v. 19, and the story in xxxvi. 26.)

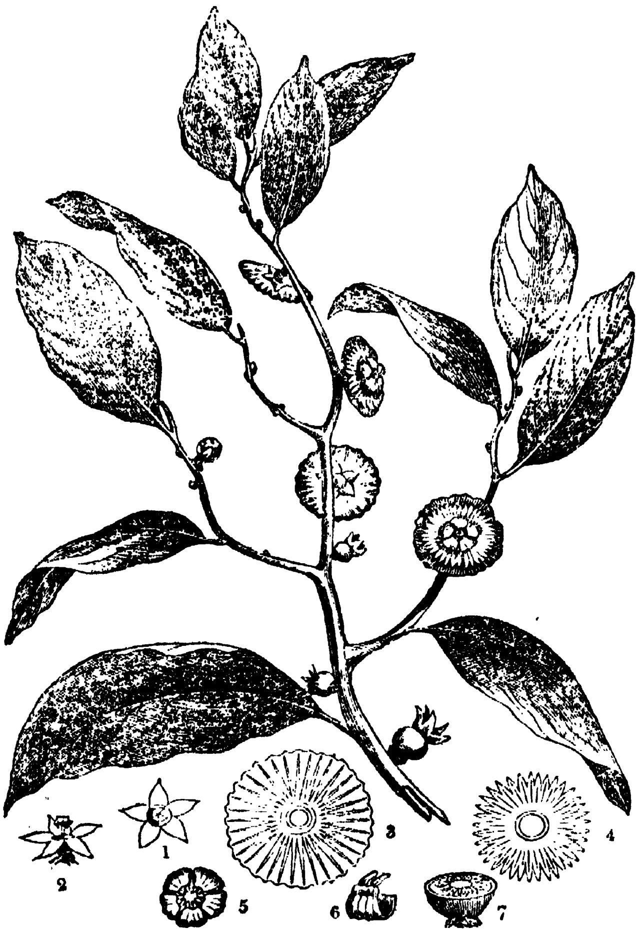
BELVEDE'RE, in architecture, is a small building constructed at the top of a house or palace, and open to the air, at least on one side, and often on all. The term is an Italian compound, signifying 'a fine view;' and in Italy it is constructed expressly for that purpose, combined with the object of enjoying the cool evening breeze, which blows fresher



[View of the Belvedere of the Vatican, from a print in the British Mu on the house-top than in the confined streets. Many houses in Rome have belvederes, for the most part of a simple form. The most celebrated construction of this kind at Rome, which is in the Vatican, was built by Bramante in that part called the court of the Belvedere. The form of this building is semicircular, and it stands over an enormous niche, a remarkable feature in the façade, of which the belvedere makes a part. From this belvedere the view is one of the finest that can be imagined, extending over the whole city of Rome and the Campagna, bounded by the distant Apennines, the tops of which are covered with snow for a large part of the year. Belvederes are not uncommon in France; but the term is applied rather to a summer-house in a park or garden, than to the constructions on the tops of houses, although small edifices, similar to those in Italy, are sometimes constructed on the tops of buildings for the purpose of commanding a fine view. There is a small building in Windsor Great Park which is called a Belvedere.

It is not improbable that the wooden trellice-work, so common in the painted representations of buildings at Pompeii, was a construction similar in its purpose to the belvedere of the modern Italians. (*Plans and Elevations, in MSS. of the Vatican*, 3 vols. fol., *and a View of the Vatican in the King's Library, Brit. Mus.; Encyclopédie Méthodique*, art. '*Architecture;*' Gell's *Pompeii, plates.*)

BELVISIA'CEÆ, a little-known natural order of plants, comprehending one genus only, discovered in the kingdom of Oware, by Palisot de Beauvois, who called it *Napoleona;* it was subsequently named *Belvisia* after its discoverer. [See BEAUVOIS.] It has been figured under the name of *Napoleona imperialis* in the Flora of Oware and Benin, where we find the only account of it. It was discovered in the neighbourhood of the town of Oware, growing to the height of seven or eight feet, and loaded with large broad bright blue flowers, sitting close upon the branches. They are remarkable for having a superior calyx of five pieces, together with a double monopetalous corolla, of which the outer forms a flat crènelled disc, and the interior is divided into a great number of regular narrow segments. The stamens are only five, or rather perhaps ten, united by pairs into five parcels, resembling so many petals. The stigma is peltate with five angles, and covers over the anthers. The fruit is said to be a berry, with a single cell, containing a parcel of seeds lying in pulp. From such an account it will be evident to the botanical reader that this must be one of the greatest curiosities in the vegetable kingdom.



[Belvisia cœrulea.]

1, calyx viewed from above; 2, the same in profile; 3, the outer corolla; 4, the inner corolla; 5, the stamens seen from above; 6, one of the stamens separate; 7, an ovary cut through.

Palisot de Beauvois, its discoverer, considered it the type of a new natural order allied to the gourds; Brown, we believe, suspects its relation to the passion-flowers; Lindley originally stationed it near Styraceæ, but, in his *Nixus*, places it near the Campanulas. It is probable that it has been inaccurately described, and that no exact opinion can be formed about it until it has been examined in a fresh state. In the mean while we give a figure of it, copied from the Flora of Oware, in the hope that this notice may fall into the hands of some traveller visiting the remote country in which it grows.

BE'LYTA, in entomology, a genus of the order *Hymenoptera*, and family *Proctotrupidæ.* The species of this genus are minute four-winged flies, having the antennæ fourteen or fifteen-jointed, filiform in the males, and thickened towards their extremity in the females. They frequent sandy situations.

BELZO'NI, GIOVA'NNI, was a native of Padua, but of a family originally from Rome, as he himself states in the preface to his work on Egypt. He passed his early youth at Rome, where he intended to enter the monastic life, but the French invasion of that city in 1798 altered his purpose, and in the year 1800 he left Italy, and visited in succession several parts of Europe. His family supplied him occasionally with remittances, but as they were not rich, Belzoni exerted himself to gain a living by his own talents. He turned his attention chiefly to hydraulics, which he had studied at Rome. In 1803 he arrived in England, where he soon after married; and after nine years' residence in England, during part of which he gained his living by exhibiting feats of strength, he set off with his wife for Portugal and Spain, from whence he proceeded to Malta, and from Malta to Egypt, where he arrived in 1815. His object in going to Egypt was to construct an hydraulic machine for irrigation, which should raise the water quicker and in greater quantity than the clumsy engines then used in that country. He proposed his plan to Mehemet Ali Pacha, by whom it was approved. Belzoni constructed a machine in the pacha's garden at Zubra, near Cairo, and the experiment proved successful, but owing to the prejudices and opposing interests of the natives, it was abandoned before it was completed. Belzoni then decided upon visiting Thebes, and his intention becoming known to Mr. Burckhardt, the latter gentleman prevailed upon Mr. Salt, the British consul, to employ Belzoni to remove the colossal bust, commonly, but incorrectly, called the Young Memnon, which he accomplished with great ingenuity, shipped it in a barge, which sailed down to Rosetta, and thence to Alexandria, where it was shipped for England. This head, now in the British Museum, is one of the finest specimens of Egyptian colossal sculpture. Belzoni, on his return to Cairo, received a present through Burckhardt, half of which was paid by Mr. Salt. For the whole particulars of this transaction, see Belzoni's *Travels*, and also a compressed narrative of the same in vol. i. of the *Egyptian Antiquities, British Museum*, in the *Library of Entertaining Knowledge.* Before embarking the colossus, Belzoni made an excursion higher up the country, visited the great temple of Edfu, and the islands of Elephantine and of Philæ, and proceeded into Nubia as far as the second cataract. He was the first to open the great temple of Abousambul, or Ipsambul, which is cut in the side of a mountain, and the front of which was so much encumbered by the accumulated sand, that only the upper part of it was visible. He succeeded in partly clearing the sand which stopped the entrance, and thus made the interior of this antient rock-cut temple known to the world. In 1817 Belzoni made a second journey into Upper Egypt and Nubia, during which he made excavations at Carnak, on the eastern side of the Nile, and found there a colossal head of granite, several statues, an altar with basso-rilievi, sphinxes, &c. The colossal head and an arm ten feet in length, both belonging to one colossus, are now in the British Museum. But one of the greatest discoveries of this enterprising traveller was the opening of a splendid tomb in the Beban el

Molouk, or Valley of the Tombs of the Kings. He found out by guess the right entrance, which had been blocked up for many centuries, had it cleared, and at last made his way into the sepulchral chambers cut in the calcareous rock, and richly adorned with pictures in low relief, and hieroglyphics painted in the brightest colours. Belzoni made drawings of the chambers, took impressions in wax of the figures and hieroglyphics, noting carefully the various colours, and thus constructed a perfect fac-simile of this magnificent tomb, which was afterwards exhibited in London. He also brought to England a sarcophagus of arragonite (commonly called an alabaster sarcophagus), which he found in a chamber of the great tomb. Mr. Salt paid Belzoni's expenses in these undertakings, besides giving him a remuneration, and received for his share part of the antiquities which Belzoni collected, and among the rest the sarcophagus, which he afterwards sold to Mr. (now Sir John) Soane the architect for 2000*l*. (See the *Life and Correspondence of Salt*, by J. Halls.) Belzoni also opened numerous other sepulchres excavated in the ridge of rocks at Gournou, at the foot of the Libyan mountains, near western Thebes. The difficulties and labour he had to encounter are described in his own plain but forcible style. 'The entrance to the tombs of Gournou is roughly cut in the rocks, and the sand nearly chokes up the passage. In some places there is not more than a vacancy of a foot left, which you must pass through creeping like a snail. Some of these passages are 200 or 300 yards in length, and at the end you find yourself in a more convenient place, perhaps high enough to sit in it. But what a place of rest! You are surrounded in all directions by heaps of mummies; the black walls, the faint light given by the candles or torches, the naked Arabs holding the torches, all covered with dust, and looking like living mummies, all this forms a scene that cannot be described. A vast quantity of dust arises, so fine that it enters the throat and nostrils, and a great strength of lungs is required to withstand the strong effluvia from the mummies. When I attempted to sit, my weight bore on the body of an embalmed Egyptian, and it crushed it as if it had been a band-box. I sunk altogether among the broken mummies, with a crash of bones, wooden cases and rags, which raised such a dust as kept me motionless for a quarter of an hour till it subsided.' (Belzoni's *Narrative*.)

Belzoni's next undertaking was the removal of an obelisk from the island of Philæ, the shaft of which was twenty-two feet long, and two wide at the base, which he accomplished with no other aid than poles, rotten palm ropes, and a few ignorant Arab peasants. He placed it in a boat, and contrived to pass it safely down the falls of Assouan. The obelisk was landed at Alexandria, and is now in the possession of Mr. William Bankes, at whose expense it was removed, and who has since erected it at Kingston Hall in Dorsetshire. The removal of this obelisk was attended with some unpleasant occurrences. Some persons, employed or bribed by Drovetti, a Piedmontese, formerly a consul, and now a collector of antiquities, endeavoured by violence to prevent Belzoni from effecting the removal of the obelisk, which they wished to secure for their master. On Belzoni's return to Thebes, he was assailed by two Italians in Drovetti's service, and many Arabs: a scuffle ensued, in which Belzoni was in danger of his life. He, however, with his usual boldness, surmounted all difficulties. His high stature and robust frame, great strength, and commanding mien, gave him great influence over the Arabs, who, like all semi-barbarous people, pay great respect to physical superiority.

Belzoni discovered also the entrance into the second great pyramid of Jizeh, and penetrated into the central chamber, the existence of which was before unknown, though it appeared, from an inscription found there, that it had been entered by the Arabs. In September, 1818, he again left Cairo, went to Esné, and thence struck across the Desert to the shore of the Red Sea. He there discovered the ruins of the antient town of Berenice, and visited likewise the emerald mines of Mount Zabarah. In the following year (1819) he went on another excursion to Lake Mœris, and from thence to the smaller Oasis, which lies due west of it. No European was known to have visited the spot before him. Belzoni erroneously supposed it to be the Oasis of Jupiter Ammon. At last, in September, 1819, he left Egypt, after a residence of five years, during which he made numerous and important discoveries, in which there was more novelty, as well as difficulty, than in those made by the French during their occupation of the country.

Belzoni returned to Italy, and visited his native town, Padua, the citizens of which had a medal struck, with the date of that year, 1819, in commemoration of his discoveries. On his arrival in England, he published his *Narrative of the Operations and recent Discoveries within the Pyramids, Temples, Tombs, and Excavations in Egypt and Nubia*, 4to. London, 1820, with an Atlas. In 1823 he set off once more for Africa, with the intention of penetrating to the city of Timbuctoo, the object of so many unsuccessful attempts. He undertook this journey on his own account, unassisted by any government or society. He landed at Tangier, accompanied by his wife, and thence proceeded to the city of Fez, whence he intended to proceed to Tafilelt, and join the great caravan which assembles there to cross the Desert into Soudan. Messrs. Briggs of Alexandria contributed 200*l*. towards the funds for the expedition: but the jealousy of the Moorish or Jewish traders prevented his obtaining the requisite permission from the emperor, and he then repaired to Mogadore, and embarked for Cape Coast, whence he proceeded to the Bight of Benin, which he seems to have guessed was the most direct way to reach the Niger. He there met with a negro from Kashna, who had been a sailor on board the Owen Glendower frigate, and who was returning to his own country. Belzoni and he agreed to travel together to Houssa. Belzoni was well received by the king of Benin, who gave him much useful information for his journey. Every thing seemed favourable to his undertaking, when he was attacked by a dysentery, which, after a few days, terminated his life on the 3rd of December, 1823, at a place called Gato, in the kingdom of Benin. He was buried there under a large tree, and a simple inscription was placed on his tomb. The day before his death he wrote to his friend Mr. Hodgson, who was on board the brig Swinger in the Bight of Benin, intrusting him with some directions concerning his property, and with his last affectionate farewell to his wife. Belzoni was frank and kind-hearted, trusty and honourable, and to great simplicity of manners united intelligence, firmness, and perseverance. He was certainly one of the most enterprising and sagacious of modern explorers, but he appears to have been apt to take offence, and to have been too prone to suspect the intentions of those with whom he came in contact. The reader will find in Hall's *Life of Salt* an account of the transactions between the British consul and Belzoni as to making collections, together with the history of the sale of the valuable sarcophagus, which is now (1835) in the possession of Sir John Soane.

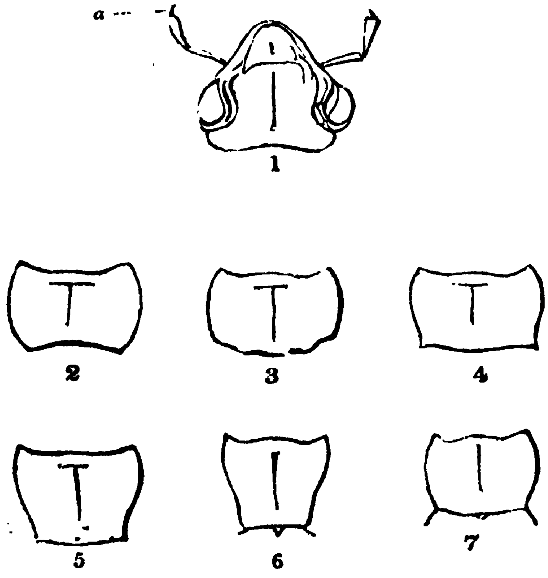
BE'MBEX, a genus of hymenopterous insects, forming the typical group of the *Bembicidæ* of Leach, a family of the *Fossores*. The chief generic characters are as follows:—Palpi very short; maxillary palpi four-jointed; labial two-jointed; mandibles with a single tooth internally; the anterior wings have three submarginal cells (the third extending to the apex of the marginal), and two recurrent nervures both springing from the second submarginal; labium and mandibles prolonged into a rostrum, or beak; body smooth, nearly conical, but rather flat beneath: in the male frequently furnished with two or more spines at the apex. Legs, in the female spinose, anterior tarsi strongly ciliated. This genus connects *Monedula* with *Philanthus*. the species are peculiar to hot climates, and, in some instances, very much resemble wasps, both in size and colour. The female forms oblique cylindrical burrows in sandy banks, with a cell at the end of each; her next object is to collect flies, such as the species of syrphidæ and muscidæ, as food for her young: in the excursions made for this purpose, she is exceedingly rapid in her motions, and produces a loud buzz in flying. Having furnished a cell with five or six flies, she deposits a single egg in it, and, after having carefully closed its mouth, proceeds in the same manner with another cell. When hatched from the egg, the larva devours these flies, and changes into the pupa state, and shortly after to the perfect insect. Although these insects are not strictly social, as the bees and wasps, yet generally the burrows of many of the same species are formed in the immediate neighbourhood of each other.

Upon leaving her burrow, the female takes great precaution to secure its entrance from her enemies, by stopping the mouth with sand. No precaution, however, is sufficient to protect it from the intrusion of its parasites. Among others, the beautiful Panorpes carnea is enabled, by the spined structure of its legs, to make its way through the sand-protected entrance—which it takes the opportunity of..

doing during the absence of the female Bembex: entering with the tail foremost, it deposits an egg, which hatches in the following spring; the larva of the Bembex then becomes food for that of the Panorpes.

BEMBIDI'IDÆ, among coleopterous insects, a family of the division *Geodephaga* of MacLeay. These are minute carnivorous beetles, which generally frequent damp situations, such as the margins of rivers, ponds, and ditches: they are usually of a bright blue or green metallic colour, having two or four pale yellow spots on the elytra. It is doubtful whether this family can hold the same rank in the Geodephaga as those of the Carabidæ, Harpalidæ, &c.: the species, however, may be easily distinguished by the minute terminal joint to the palpi. The characters of the several genera contained in this group are as follows:—

A. Body depressed and linear.	
a. Antennæ with the third and fourth joints equal.	*Lymnæum.*
b. Antennæ with the fourth joint longer than the third. . .	*Cillenum.*
B. Body rather ovate.	
a. Thorax transverse, not truncate, heart-shaped:	
a. Posteriorly rounded:	
1. Whole.	*Tachys.*
2. Emarginate. . . .	*Philocthus.*
b. Posteriorly acute. . . .	*Ocys.*
b. Thorax truncated, heart-shape: .	
a. The posterior angles very acute and prominent: .	
1. Antennæ with the third, fourth, and fifth joints long. . .	*Peryphus.*
2. Antennæ with the third, fourth, and fifth joints short. . .	*Notaphus.*
b. The posterior angles slightly acute-deflexed:	
1. Eyes moderate.	
*Thorax rather remote from the abdomen at the base. . .	*Lopha.*
**Thorax closely united to the abdomen.	*Tachypus.*
2. Eyes large.	*Bembidium.*



1. Head of one of the Bembidiidæ, showing the form of the palpi—*a*. the terminal joint; 2. Thorax of Tachys; 3. Thorax of Philocthus; 4. Thorax of Ocys; 5. Thorax of Peryphus; 6. Thorax of Lopha; 7. Thorax of Tachypus.

BE'MBO, PIE'TRO, was born at Venice in 1470. His father was a patrician of Venice, and a man of considerable taste for elegant literature. Being sent by the senate in 1483 as prætor or governor of Ravenna, he restored and embellished the sepulchral monument erected in that city to the memory of Dante, by Guido della Polenta. His son, who showed an early disposition for learning, studied at Padua and at Ferrara, and afterwards went to Sicily, where he learned Greek from Agostino Lascaris at Messina. On his return to his native country, he repaired to the little town of Asolo, near Treviso, which had become the residence of Caterina Cornaro, the widow of James Lusignano, the last king of Cyprus, who having resigned her kingdom to the Venetian senate, was enjoying a splendid income, with the title of queen, and holding a sort of little court in that pleasant retirement. She was a woman of elegant taste and refined education. In September, 1496, she gave some splendid entertainments on the occasion of the marriage of her favourite lady in waiting, to which she invited many persons of distinction, and among others young Bembo, whose family was related to hers. According to the usages of chivalry still in fashion in that age, some of the hours of leisure between the banquets, tournaments, and other pageants, were employed in learned or witty conversations, and especially in speculative discussions on the subject of love, some praising it as the source of human happiness, others blaming it as the cause of much misery, &c. From these disquisitions Bembo derived the plan of a work, which he styled *Gli Asolani*, from the name of the place. It is, or rather pretends to be, a collection of what was said in those entertainments by the several disputants on the nature, qualities, and effects of love, distinguishing the pure sentiment from the grossness of the passion that goes by that name, and ending in a moral strain on the contemplation of divine love, or the love between the Creator and his creatures. The metaphysical part of the reasoning is derived from Plato's philosophy, which was in high favour at that time among the learned of Italy. This work of Bembo was received with considerable applause, and the book is still esteemed as a specimen of good Italian prose.

Bembo's father wished him to devote himself to the civil service of his country, by entering on some official employment, in which his noble birth and connexions would have enabled him to aspire in course of time to the highest dignities of the republic. Bembo, however, preferred going to Rome, and becoming a candidate there for ecclesiastical preferment, as better suited to his taste for study. His father opposing his design, Bembo resolved to devote himself to the monastic life, and he cast his eyes on the abbey of la Croce dell' Avellana, situated in the mountains near Urbino. Having repaired to the town of Urbino previous to shutting himself up in his intended retirement, he was so kindly received by the then Duke Guidobaldo di Montefeltro and Elizabetha Gonzaga, his consort, that he changed his mind, and took up his residence at their court, which was distinguished both for the personal character of the sovereigns and for the encouragement which they gave to the learned. At Urbino Bembo began to write Italian poetry, in which he imitated the style and the harmony of Petrarch; and here also he became intimately acquainted with Giuliano de Medici, third son of the great Lorenzo, and afterwards Duke of Nemours, who was then residing at Urbino. After the death of Duke Guidobaldo, which was soon followed by that of his duchess, Bembo and Giuliano agreed to proceed to Rome; but previous to his departure from Urbino, Bembo left a token of his gratitude for the two amiable sovereigns in an affectionate eulogium: *De Guidobaldo Feltrio, deque Elisabetha Gonzaga, Urbini Ducibus.* It is in the form of a conversation between Bembo, Sadoleto, Beroaldo, and Sigismondo da Foligno, and is really interesting from being written with sincerity and true feeling, and in praise of two deserving persons. The sketch of the Duchess Elizabeth is a touching specimen of real pathos. Like her relative Lucrezia Gonzaga, Elizabeth was a bright specimen of Italian female character in the midst of a most corrupt age.

Soon after Bembo had arrived at Rome, Cardinal de' Medici, brother to his friend Giuliano, was raised to the pontifical chair under the name of Leo X. This was to Bembo a most fortunate event. Leo appointed him his secretary, together with the learned Sadoleto. The briefs, letters, and other official acts which the two secretaries wrote in the name of the pontiff, were distinguished for their classical style, carried almost to fastidiousness. Rome was at that time the seat of dissipation and licentiousness, as well as of learning. Bembo shared in the common propensity, and several of the Latin verses which he then wrote are stained by indecent images and expressions. His elegy on Galatea is one of the best specimens of his Latin poetry. After Leo's death in 1521, he went to Padua, where he fixed his residence. Leo had amply provided him with ecclesiastical benefices; and Bembo, who was now enabled to gratify his taste for literature and the arts, became a munificent patron of learning, and collected a rich library and a cabinet of rare medals. At Padua he completed his work on the Italian language, at which he had laboured assiduously for many years: *Prose di M. Pietro Bembo, nelle quali si ragiona della Volgar Lingua, divise in trè libri*, Venezia, 1525. This work was dedicated to Cardinal de' Medici, afterwards Pope Clement VII. It is one of the earliest works on the rules of the Italian language: it has gone through many editions, and is still much esteemed. Bembo's Italian poems were published some years after, *Rime di M. Pietro Bembo*, Venezia, 1530. In 1530, the Council of Ten commissioned Bembo to write the history of the Venetian republic, beginning from the year 1487, where Sabellico had left it. Bembo wrote it in Latin, and carried it to the year 1513, *Historiæ Venetæ* libri xii. He afterwards wrote an Italian translation of his work: *Historia Viniziana, volgarmente scritta*, which was published after his death at Venice, in 1552, with a life of the author. This translation was long after republished, in 1790, by Morelli, the librarian of St. Mark, in two vols. 4to. with many corrections from Bembo's autograph, and with a fine likeness of the author, engraved by Bartolozzi from a painting by Titian.

Bembo had been for many years settled at Padua in studious retirement, after renouncing the licentiousness of his early years, as well as all prospects of ambition, when in 1539, Pope Paul III. unexpectedly sent him a cardinal's hat. Bembo, more perplexed than pleased at his promotion, took time to consider whether he should accept of it; he had as yet taken only the minor orders, which are not binding for life. He however accepted it, and at Christmas, 1539, he was ordained presbyter, when he received the insignia of the cardinalship, and proceeded to Rome, where he chiefly resided for the remainder of his life. He died at Rome in 1547, in his 78th year, and was buried in the church of Santa Maria super Minervam. His friend Girolamo Quirini raised a splendid monument to his memory in the church of St. Anthony of Padua. Of Bembo's three illegitimate children, whom he had during his residence at Rome in the pontificate of Leo X., one died young; another, called Tommaso, became a churchman; his daughter Elena married Pier Gradenigo, a Venetian nobleman. Bembo was intimate with Della Casa, Castiglione, Sadoleto, and most of the Italian literati of his age. His epistolary correspondence, both Latin and Italian, was published in parts, and at different times. *Epistolarum Familiarum libri VI. et Epistolarum Leonis X. Pont. Max. nomine scriptarum, libri XVI.*, 8vo. Venetiis, 1552; *Bembi et Sadoleti Epistolarum liber unus*, Florentiæ, 1524; *Lettere di Pietro Bembo*, 4 vols. 8vo. Venezia, 1552. Bembo's Italian verses were published in 1530, *Rime di M. Pietro Bembo*, and afterwards frequently reprinted.

BEN (בֵּן, constructed* בֶּן or בִּן, *son*) is the first syllable in many Hebrew names, which may be compared with our forms of names like Morrison, Johnson, Robertson, &c.: for instance, בֶּן־הֲדַד, *Benhadad*, is *the son* or the *worshipper of Hadad*, or Adod, the chief idol of the Syrians. בֶּן־אוֹנִי, *Benoni*, is *son of my pain*: בִּנְיָמִין, *Benjamin*, is *son of the right* (hand), *i.e.* son of happiness. These examples show that not only literal sonship but also metaphysical relation is expressed by Ben.

BEN, BEIN, or BHEIN, is a word which exists in the Scottish dialect of the Gaelic language, and has been adopted in our language to indicate the most elevated summits of the mountain-ranges which traverse that part of our island to the north of the Firths of Clyde and of Forth. The corresponding term in some parts of Europe is Pen, which occurs in the names of several places in Cornwall and Wales, in the Penine Alps, in the word Apennines, and probably in the Cevennes of France. The number of mountains to the proper names of which this word is prefixed is very considerable. We shall only notice here the most important and best known.

Ben Nevis, in Inverness-shire, 55° 50′ N. lat., and 5° W. long., rises abruptly from a narrow and low plain by which it is separated from Loch Eil, the northern portion of Loch Linnhe, and attains an elevation of 4368 feet above the level of the sea, and is perhaps the highest mountain of Great Britain, though its summit rises to little more than one-third of the height of Mont Blanc. The lower portion consists of granite and schistose rocks, and the upper is a mass of porphyry. This extensive mass of rocks is on the north bounded by the deep valley of the Spean and on the south by that of Glen Nevis. On the east it is connected by a much lower range of hills with the Grampians. The lower parts of the mountain, especially towards the south and south-west, are usually covered with rich grass, which is generally saved for winter consumption. The green pasture extends upwards, gradually growing thinner to the middle of the mountain, where it is succeeded by some mosses intermixed with stones for a short way, after which nothing appears above but an immense heap of loose stones. The summit is an extensive flat plain, strewed with loose rocks. In a few hollows near the summit patches of snow usually lie all the year round, and in one of these hollows facing the north, a little below the highest point, snow always remains during the whole year.

Ben Mac Dhu, the highest summit of the Cairn-Gorum Mountains, is second only to Ben Nevis. The Trigonometrical Survey, whose results however have not yet been published, has determined it to be 4305 feet above the level of the sea. This mountain summit may be considered as the centre of the Cairn-Gorum range, situated where the counties of Aberdeen, Banff, and Inverness meet, and extending on both sides of the meridian 3° W., and between 57° 5′ and 57° 10′ N. lat. It overhangs the southern extremity of Loch Avon, which is so deeply embedded in this range, that during several of the winter months the sun never shines on the surface of the lake.

Ben Lawers, in Perthshire, extends between 56° 30′ and 56° 35′ N. lat. near the meridian of 4° 15′, and occupies with its declivities a considerable part of the northern banks of Loch Tay. It is, according to the Ordnance Survey, 3948 feet in height, and rises more than 1000 feet above all the hills that immediately surround it. This mountain is of very easy ascent.

Ben Cruachan, in Argyleshire, is formed by an extensive mountain mass, whose circumference is supposed to be upwards of twenty miles, and extends along the northern extremity of Loch Awe and the northern banks of the water of Awe, between 56° 25′ and 56° 30′ N. lat., and westwards of the fifth meridian of Greenwich. It is composed of grey granite, and its descent towards the north-east and the shores of Loch Etive is steep and bare, mixed with pastures of a subdued brown colour. Towards Loch Awe and the river Awe its declivities are comparatively gentle, and at its foot a narrow tract of low land extends along the lake and river. The Ordnance Survey states its height at 3669 feet; its highest parts form two steep cones of which the most northern is the higher.

Ben Vorlich, in Perthshire, extends between 56° 20′ and 56° 25′ N. lat. west of the meridian 4° along the southern side of Loch Earn, and terminates at the junction of the Earn and the Ruchil, forming one continuous and lofty wall. With the exception of Ben Venu, the leading feature of Loch Cateran (Katherine), says M'Culloch, no mountain in Scotland presents a declivity so wild and various, such a continual succession of bold precipices and deep hollows, of ravines and torrents, and of woods dispersed in every mode of picturesque distribution.

Ben Ledi, in Perthshire, extends on the western side of Loch Lubnaig, where it rises with a steep and rocky declivity immediately from the lake to a height of nearly 3000 feet above the level of the sea.

Ben Venu extends along the southern shores of Loch Katherine in Perthshire, and presents the most striking features in the picturesque scenery by which that lake is distinguished. The Trossachs, celebrated for their beauty, extend on its lower slopes and at its foot. [See TROSSACHS.]

Ben Lomond, in Stirlingshire, at no great distance to the south-west of Ben Venu, is the best known of the mountains of Scotland on account of its forming the southern extremity of the Highlands, and its situation near the banks of Loch Lomond, whose eastern shores are formed by the gentle slope of the mountain. It is of easy ascent and distinguished among the mountains of North Britain by being covered with vegetation up to the very summit. This mountain rises to 3197 feet above the level of the sea, and affords from its western slopes a fine view over Loch Lomond and its islands.

Ben Wevis or Wyvis, though probably not the highest summit to the north of Glenmore, is the best known, because it forms the western boundary of the plains of Dingwall and Cromarty. It rises between 57° 40′ and 57° 45′ N lat., and near the meridian of 4° 30′, and has been found by the Ordnance Trigonometrical Survey to be 3000 feet above the sea. It does not, however, attain that height abruptly, but by numerous steep slopes interrupted by narrow and sloping plains. (M'Culloch's *Highlands and Western Islands;* Sinclair's *Statistical Account of Scotland;* Sir Thomas Dick Lauder's *Account of the Great Floods*, &c.)

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* The construct state or regimen of a Shemitic noun is that shortening by which is expressed that it governs a following genitive, as in the examples given.

BENARES, one of the eight districts into which the province of Allahabad is divided, lies between 25° and 26° N. lat., and 82° and 84° E. long. This district, or zamindary, formerly constituted an appanage of the dominions of Oude, by whose vizier, Asoph-ud-Dowlah, it was ceded in 1775 to the East India Company, as a compensation for the aid which had been granted to him in the preceding year, and by which he was enabled to reduce to subjection the tributary chief of the Rohillas. In the following year, 1776, this zamindary was granted to the Rajah Cheyt Singh of Benares, subject to the payment of an annual tribute to the company. The violation of this agreement on the part of Mr. Hastings, then governor-general of India, formed one of the charges brought against him on the memorable occasion of his impeachment by the House of Commons.

In August, 1781, Mr. Hastings repaired in person to Benares, and placed the rajah under arrest in his own palace, whence he was rescued by his subjects. The natives being unable, however, to make a successful stand against the English troops, the Rajah Cheyt Singh was deposed, and his nephew, a minor, set up in his stead, a larger amount of tribute being exacted from him, and the government of the district being placed under officers who were made directly responsible to the governor-general and council. The tribute, which was originally fixed at 22,66,180 Sicca rupees (about 280,000*l.*), was raised on this occasion to 40 lacs of rupees (about 500,000*l.*) per annum. The consequences of this measure are thus described by its author, who passed through the country in February, 1784: 'From the confines of Buxar,' says Mr. Hastings, 'to Benares, I was followed and fatigued by the clamours of the discontented inhabitants. The distresses which were produced by the long-continued drought unavoidably tended to heighten the general discontent, yet I have reason to fear that the cause existed principally in a defective, if not a corrupt and oppressive administration. I am sorry to add, that from Buxar to the opposite boundary, I have seen nothing but traces of complete devastation in every village.'

The rajah has since become a mere stipendiary of the company's government, which, in 1795, took entire possession of the revenues, and proceeded to administer the affairs of the district, making an annual allowance of about 12,000*l.* to the rajah for his personal support. On the occasion just mentioned the British government passed a regulation, enacting that the last decennary assessment for the land revenue, which had been made under its sanction, should be considered as a permanent settlement. At the same time the courts of judicature which were superintended by native judges were abolished; and in lieu of them were established one city and three zillah courts, together with a provincial court of appeal, all similar in their constitution and jurisdiction to the corresponding tribunals in the provinces of Bengal, Bahar, and Orissa. By another regulation the powers of the Sudder Dewanny Adawlut, and Nizamut Adawlut, the supreme courts of the Company at Calcutta, were extended over the district of Benares.

The collectorate of Benares includes the three districts of Benares, Ghazeepore, and Juanpore, of which Benares is the least in extent, but the most important with regard to revenue, as appears from the following statement, given to the Committee of the House of Commons which sat in 1832:—

	Square miles.	Assessment. 1829-30.	
Benares	350	16,96,899	rupees.
Ghazeepore	2,850	13,23,449	„
Juanpore	1,820	10,82,391	„
	5,020	41,02,739	„

The district of Benares has Ghazeepore on the north and east, Juanpore on the west, and Mirzapore on the south. The land is, for the most part, rich and well cultivated. Barley, wheat, and a species of peas are the principal vegetables cultivated for the food of the inhabitants. Flax is raised only for the oil expressed from its seeds. A considerable quantity of sugar is made in the district, but its most profitable productions are indigo and opium.

The district is well watered by the Ganges and the Goomty rivers, as well as by several small tributaries to those streams, and having now enjoyed a long period of peace and security, the inhabitants have realised the advantages offered by its soil and climate, and the district exhibits many signs of prosperity. For about nine months in the year the climate is temperate, and sometimes during the winter fires are found agreeable in the houses. During the three months from April to June hot winds prevail, and for a time destroy the verdure.

The number of inhabitants in the district is not known. The population of the three districts which form the collectorate has been estimated variously at from three to five millions, but all authorities appear to agree as to the fact of its having rapidly increased of late years.

(Rennell's *Memoir of a Map of Hindustan;* Mill's *History of British India; Letter from B. S. Jones, Esq., to the Chairman of the Select Committee on East India Affairs*, inserted in the *Report* of that committee in 1832.)

BENARES, the capital of the district of that name, is built on the north bank of the Ganges, which here makes a fine sweep; the convex side of the curve is that on which the city is built: 25° 30′ N. lat., and 83° 1′ E. long.

Benares is celebrated as having been in antient times the seat of Brahminical learning. According to Major Rennell, 'its antient name was Kasi, but there are no notices concerning it in the works of the antient geographers.' Dr. Robertson speaks of the city as having been, 'from time immemorial, the Athens of India, the residence of the most learned Brahmins, and the seat both of science and literature.' Sir Robert Barker, who visited Benares in 1772, has described an observatory there, in which he found instruments for astronomical observations of very large dimensions, and constructed with great skill and ingenuity: tradition attributes the building of this observatory to the Emperor Akbar.

The streets of the city are, for the most part, only a few feet broad, and the houses, which are built of stone and lofty, are so close together that the sun's rays can hardly penetrate to the pavement. The streets are described as being covered with every kind of filth, which renders the place highly disagreeable as a residence to Europeans. When seen from the river the appearance of the city is beautiful. The eye is pleased with the great variety of the buildings, some of which are highly ornamented, and have terraces on their summits; the view is greatly improved by the numerous flights of stone steps which lead from the banks of the river to Hindu temples and other public buildings. The number of brick and stone dwellings is said to exceed 12,000, besides which there are above 16,000 houses built of mud.

Many of the houses are of large dimensions. It is customary for each story to be rented by a separate family, and some of the buildings are thus said to contain each 200 inhabitants. The more wealthy Hindus live in detached houses, with open courts, and surrounded by walls.

Almost in the centre of the city is a large mosque, built by Aurungzebe on the site of a magnificent Hindu temple, which he destroyed for the purpose of erecting the present building: the mosque has two minarets, the height of which is 232 feet from the level of the Ganges.

The dwellings of the European residents are at Secrole, about three miles from the city. This place was the scene of a tragical event in January, 1799, when the deposed nabob of Oude, irritated by the British government requiring him to transfer his residence from Benares to Calcutta, proceeded with a body of armed attendants to the house of the Company's resident, Mr. Cherry, whom they assassinated, together with four other European gentlemen. The nabob, Vizier Ally, made his escape with about 400 followers to Azimghur, but was taken in the December following and imprisoned in Calcutta.

The native population of Benares is at all times very great. In 1803 the resident inhabitants were estimated to amount to 582,000, and the number is now supposed to be even greater. Nine-tenths of the population are Hindus, and the remainder Mohammedans.

The sacredness of the city in the estimation of Hindus makes it the constant resort of pilgrims from all parts of Hindustan, and a great number of these devotees, being exceedingly poor, subsist upon charity, and are consequently often reduced to a state of the greatest misery. According to Mr. Tennant, 'hunger, wretchedness, and disease seem to meet your eye in every direction.' A considerable number of Turks, Persians, and Armenians are constantly in the city. Several of the natives are men of great wealth, who act as bankers, and have been accustomed to facilitate the money operations of the East India Company. Some also are dealers in diamonds and other precious gems, which are brought to Benares from Bundelcund.

A great part of the instruction formerly given at Benares was gratuitous, from the prevailing idea that all the religious merit of the act would be lost if any payment were taken from the pupils. It does not appear, however, that the teachers had any scruples about receiving donations from pilgrims or from Hindu princes. At the time of the establishment of the British empire in India, the schools of Benares were in a declining condition. The Hindu Sanscrit College of this city was established by the English resident, Mr. Duncan, in 1791. This institution has since been principally supported by the Company's government: some of the scholars contribute towards the expenses. An English class was added to this college in 1827, when the number of students was 259; in 1830 the number was increased to 287. Other schools have been established in Benares during the present century, and have been partly endowed by native inhabitants. In one of these schools nearly 200 children are instructed in the English, Persian, and Hindustannee languages, as well as in writing, arithmetic, general history, geography, and astronomy.

The government of the city, as well as of the district of which it is the capital, has been virtually exercised by the British since 1775. The rajah of Benares holds merely a nominal authority, and is a stipendiary of the Company. His residence is at Ramnaghur, about a mile from the city on the opposite side of the river.

Benares is 83 miles travelling distance from Allahabad, 460 miles from Calcutta, 130 from Oude, 189 from Lucknow, 950 from Bombay, and 1103 from Madras.

(Rennell's *Memoir of a Map of Hindustan*; Mill's *History of British India*; Tennant's *Indian Recreations*; Hodge's *Travels in India*; *Report of Committee of the House of Commons on the Affairs of India*, 1832, public and political sections.)

BENAVI'DES was a native of Quirihue, in the province of Concepcion, in Chili. Himself and a younger brother entered the patriot army at the beginning of the revolution. The elder brother attained the rank of a serjeant in a Buenos Ayres battalion. In 1814 both brothers were found guilty of some capital offence, and sentenced to death. Being placed in the condemned cell, they contrived to make their escape, set fire, as it is supposed, to the field depôt, and went over to the royalists, in whose service they were the scourge of Chili for four years. At the battle of Maypo, in 1818, they were made prisoners, but not being recognised till the Chilian general had offered a general amnesty to all military offenders, they escaped unpunished. The supreme director, however, desiring to rid the country of them, sent them with a strong escort to the province of La Plata. Not far from Santiago, the officer of the escort discovering that the prisoners had attempted to bribe the men to let them escape, ordered them both to be executed. The two brothers, tied together, were made to kneel on the ground, and a volley was fired upon them. The younger Benavides was shot dead. The elder received two balls, one of which passed through his right shoulder, and the other through his left side. The serjeant of the detachment also gave him a cut with his sword in revenge for the loss of his family, whom Benavides had destroyed, and the soldiers, after throwing some earth and stones upon the bodies, withdrew. Benavides, when he found that his executioners had left him, with great difficulty threw off the earth and stones, and having untied the cords with which he was fastened, he stripped his dead brother of his shirt, in order to bind his wounds with it. Notwithstanding the acute pain of his wounds, he reached the hut of a poor old man, where, without any other cure than washing his wounds every day with water, in little more than two weeks he found himself strong enough to undertake his journey. He set out accordingly towards Santiago, and contrived to enter the city secretly. His wife solicited, through a great patriot, her relative, and a particular friend of General San Martin, an interview between that general and her husband; and Benavides engaged himself again to serve in the patriot army, the general having first given him a written promise that he would keep his name secret. San Martin sent Benavides, under the charge of one of his officers, who did not know him, to General Valcarce, then commanding the republican forces near Concepcion, with an order to place him on his staff, and, while keeping a sharp eye over him, to avail himself of Benavides's knowledge of the country, of his great influence over the Araucanian Indians, and of his former connexion with the Spaniards. To Benavides's advice and counsel the patriots were indebted for the conquest of the district of Lajas, and of the Fort del Nacimiento. Unfortunately General Valcarce made Colonel Freire, then governor of Concepcion, acquainted with the secret, and that officer, in a warm discussion with Benavides, had the imprudence to tell him that a man of his character was not to be trusted. Irritated at the insult, Benavides disappeared two days after, and went over to the Spaniards. General Sanchez, who commanded at that time the Spanish forces on the frontier of Chili near Concepcion, gave him a commission in Arauco, and from that moment Benavides commenced the most cruel and desolating war against the independent Chilians. In the space of two years, with the help of the Araucanian Indians, he committed cruelties upon the patriots too revolting to relate. In 1821 the Chilians armed an expedition against him, and Benavides being abandoned by all his followers, sailed for Arica, with the intention of joining the Spaniards in Peru. His launch having entered a cove near Valparaiso in quest of water, one of his own men betrayed him. He was taken and executed at Santiago on the 23rd of February, 1823. (*Memoirs of General Miller*.)

BENBOW, VICE-ADMIRAL, was born in 1650. His whole life, from boyhood to his death, was spent in active service at sea; and though he was by no means a very successful or brilliant commander, he was distinguished throughout his career for his courage and professional enterprise. He early attracted the favourable notice of James II., the great reformer of our naval service; and after the revolution was much employed by King William. An anecdote, involving a punning play upon words, which was by no means a frequent pastime of the last-named monarch, is told with reference to Benbow, which well illustrates the estimation in which he was held by him. It was proposed to send out a naval expedition to the West Indies, to watch the proceedings of the French in that quarter; and after several names were proposed for the command of the expedition, William exclaimed, 'No; these are all fresh-water *beaus*; but the service requires a *beau* of another sort—therefore we must send Admiral Ben*bow*.'

The service by which Benbow is best known in our naval history was his last. On the 11th of July, 1702, he left Port Royal in Jamaica, in quest of a French squadron, commanded by M. du Casse, a very brave and skilful officer. On the 19th of August, Benbow came up with the French force, and though inferior in number and weight of metal, immediately attacked them. A running fight was kept up for four days; but owing to the cowardice or treachery of the officers under his command, the brunt of the engagement was thrown upon Benbow's own vessel. On the morning of the fifth day he renewed the chase and fight, but was wounded by a chain-shot, which broke his right leg to pieces. He was carried below, but very soon ordered his cradle to be brought upon the quarter-deck, so as to command a view of the action as he lay there. The engagement lasted till it was dark; but so far from receiving any assistance from his officers, they addressed a written remonstrance to him, in which they declared the inability of the English force to contend with that under Du Casse. Thus counteracted, he sailed back to Jamaica, had the officers immediately put under an arrest, and tried by court-martial. They were condemned on the clearest evidence; two of the captains were shot, and the rest were visited with various degrees of punishment. Benbow survived just long enough to hear his own conduct vindicated and applauded. He died of the wound in his leg, on the 4th of November, 1702. (*Biographia Britannica*; Tindal, *Continuation of Rapin's Hist. of England*.)

BENCH. [See BANK.]

BENCHER. [See INNS OF COURT.]

BENCOOLEN, a settlement in the possession of the Dutch on the west coast of the island of Sumatra, in 4° 10′ S. lat., and 102° 50′ E. long.

In order to carry on the pepper trade with advantage, the English East India Company formed an establishment at Bencoolen in 1685, to which they afterwards gave the name of Fort Marlborough. This settlement did not at first fulfil the promise of advantage which led to its formation. In 1687 Mr. Ord, the head of the establishment, was poisoned, and we learn from the early records of the Company that they entertained in that year serious thoughts of abandoning the station, and transferring their officers to Priaman or Atcheen. In 1694 the factory was, however, described as being very prosperous, and in the following year the Company obtained by grant from the rajah an addition to their settlement, which in consequence included the town of Sillibar. During the next twenty-five years the English settlers were much harassed in consequence of disputes between rival chiefs, in which the settlers were compelled to take a part, and in 1719 the English were nearly all destroyed by the natives.

Bencoolen, with the other English settlements on the coast of Sumatra, was nearly destroyed by a French force under Count D'Estaing in 1760, but the town was soon rebuilt. This settlement had long ceased to be of any political or commercial importance to the East India Company. Pepper, the produce for obtaining which the factory was originally established, was procured on better terms from Prince of Wales' Island and from the Malabar coast. Attempts were made in 1796 to cultivate the nutmeg and clove, but the quality of these spices proved so inferior to the produce of Amboyna as to give little encouragement for persevering. The small importance of the Company's trade to Bencoolen is shown by the fact that the average annual cost of the consignments sent there from Europe in the ten years between 1814 and 1824 did not amount to 3000*l.* The expense of the establishment was, on the other hand, very considerable, and far exceeded the revenue: the latter, during the five years from 1819 to 1824, did not average more than 7133*l.* per annum, while the average amount of charges during the same time was 92,322*l.* per annum.

The East India Company made no sacrifice therefore in delivering up Bencoolen to the Dutch government. This cession was made in 1825, at which time all the other British settlements in Sumatra were also given up in exchange for the Dutch settlements on the continent of India, including the town and fortress of Malacca.

The district or province of Bencoolen has, since its cession to the Dutch, been made dependent upon their settlement at Padang. Bencoolen district is now described as being bounded to the north and west by the district of Indrapoor, and on the east and south by Lampung. The total population is said (rather vaguely) to amount to 100,000 souls. During the occupancy of the English, the numbers were estimated at only 20,000, but the district was then not so extensive as it has since been made. Since 1825 the Dutch settlers are said to have discovered coal-mines in the interior, which produce fuel of a quality little inferior to the coal of Europe. This discovery, if the means of transport to the shore are not too costly, and if the favourable report as to quality should be confirmed, will prove of much value in the probable event of the extension of steam navigation in the eastern seas.

The town of Bencoolen is small but tolerably well built and of a pleasing appearance. It has a bad character with respect to healthiness. Fort Marlborough, which stands only a short distance inland, is said to be more healthy.

The population of Bencoolen town is of a very mixed description, including Europeans, Dutch, and English, and their descendants; Chinese, Malays, settlers from Pulo Neas, an island lying off Tapanooly Bay on the western coast of Sumatra, and some negroes.

The cultivation of the spice plantations is kept up by the Dutch, the labour being performed by slaves, who are principally brought from Pulo Neas and from the island of Bally. Debtors are likewise considered as slaves, being obliged to work for the benefit of their creditors.

Bencoolen trades with Batavia, Bengal, the Coromandel coast, and the more northern ports of Sumatra. The imports are chiefly cloths, rice, salt, opium, tobacco, sugar, and some European manufactures, part of which are re-exported, with the produce of the district, to other parts on the island, or are sent into the interior. (*Early Records of the East India Company*, inserted in the Report of the Committee of the House of Lords on the Foreign Trade of the Country in 1820 and 1821; *Report of Select Committee of the House of Commons on the Affairs of the East India Company*, 1832; Marsden's *History of Sumatra*; Count Hogendorp's *Coup d'Œil sur l'Ile de Java et les autres Possessions Néerlandaises dans l'Archipel des Indes.*)

BEND-EMIR (also written *Bandamîr* or *Bundemeer*), is the name of a river in Farsistan, or Persia Proper, the Araxes, Coros, or Cyrus of the antient Greek and Roman geographers, and sometimes called *Kur* by oriental writers. Strabo (xv. c. 3, p. 729, Casaub.) says that the founder of the Persian monarchy was originally called Agradates, but that he assumed (μετέλαβε) the name Cyrus from this river: the passage is thus read in all the MSS.; but most editors (altering μετέλαβε into μετέβαλε) make the author say that Cyrus gave the river his own name, its previous appellation being Agradates: Groskurd, the most recent German translator of Strabo, and A. F. Pott (*Etymologische Forschungen*, Introduct. p. xliv.) have given the preference to the reading of the MSS., which is doubtless the right reading. According to the map accompanying Sir William Ouseley's Travels, it has its origin in the hills towards the north of Shiraz, and flows in a direction to the S.E.E. towards the lake Bakhtegan. In its course it traverses the beautiful and productive valley of Marvdasht, or Merdesht, where it is joined by a small tributary stream from the north, the Palwâr, (according to Kinneir, the Shamier,) and passes by the celebrated ruins of Persepolis, which are situated on its left or northern side; farther on it flows through the district of Kurbâl, where it is divided into numerous channels to fertilize the ground. The part of the water which is not spent in the irrigation of the ground, falls into lake Bakhtegan, at a distance of about fifty miles towards the east from Shiraz. Niebuhr, who crossed the Bend-Emir in his way from Shiraz to Persepolis, describes it as a very rapid river, and says that a bridge of bricks, 300 feet long, was built across it. Bend-Emir is also the name of a village situated on the river. The name of both the village and the river alludes to the extensive mounds or dykes constructed here in the tenth century by the emir Azad-al-daulah, by which a tract of country of considerable extent was fertilized. (See BAND; Ouseley's *Travels*, vol. ii. p. 180, seq.; Niebuhr's *Voyage en Arabie, &c.* vol. ii. p. 98; Kinneir, *Geographical Memoir of the Persian Empire*, p. 59; Strabon's *Erdbeschreibung von* Groskurd, vol. iii. p. 187, 188, Berlin, 1833, 8vo.)

BENDER (formerly Teckin or Tigine, called by the Russians Bendery, and by the natives Tigino), a fortified place, and the chief town of the circle of Bendersko-Kdoukansk, in Bessarabia, which is the most south-western province of the Russian dominions in Europe. The town is situated in 46° 50′ N. lat., and 29° 35′ E. long. It lies on the right bank of the Dniester, and is built on the land-side in the shape of a crescent. Up to the commencement of the present century it belonged to Turkey, and was considered a post of such high military importance, that its fortifications were strengthened and enlarged by that power at various times. It is still inclosed by a wall and deep broad ditch, and retains its citadel, which is constructed on an eminence; the defences, however, have of late years been used for the erection of soldiers' quarters, magazines, &c. The streets are narrow, gloomy, and kept in a filthy state; the mosques, twelve in number, have been mostly converted to other purposes; and there are likewise an Armenian and Greek church, as well as a synagogue in the town. Bender has seven gates, and two suburbs, which are inhabited by natives, whose occupation is mostly agriculture and grazing. Its population, which in former times was 20,000, is at present reduced to less than 5000: the chief source of their support is a salt-petre work, some tanneries, iron-smithies, and three paper-mills. Its celebrity dates from the early part of the last century, when Achmet III. granted an asylum in his dominions to Charles XII. of Sweden, after he had lost his army in the battle of Pultawa, on the 8th of July, 1709, and had fled to Bender. He was permitted to take up his residence in the adjoining village of Varnitza on the Dniester, where he lived for the next four years; but by his offensive conduct, maliciously aggravated in the eyes of the Turks by the intrigues of Catherine of Russia, ultimately brought upon himself the hostility of his host, whom he had the temerity to brave by resisting several thousand men with a handful of followers in a barricaded house. His generous enemy, however, allowed his royal prisoner to escape, and make his way peaceably back to his native country. Bender was twice taken by assault in Catherine's time. On the last of these occasions, in 1771, General Panin stormed it, put the garrison and inhabitants, to the number of 30,000, to the sword, and then burnt the town. Russia, in dictating the subsequent treaty of Kutshuk-Kainardshy, (21st July, 1774,) restored the ruins of the place to the Turks. In the campaign of 1809, the Russians again assailed and captured it without much effort, but restored it to Turkey at the peace of Jassy; and it once more fell into their hands two years afterwards, in the campaign which terminated with the treaty of Bucharest, in 1812, by the terms of which Bender and the surrounding districts were ceded to Russia.

BENEDICT, SAINT, the founder of the order of Benedictine monks, was born at Nursia in the dukedom of Spoletto in Italy, about the year 480. He was sent to Rome when very young, and there received the first part of his education; when fourteen years of age he removed to Sublaco, a desert place about forty miles distant, where he was concealed in a cavern; his place of retirement, for a considerable time, being known only to his friend St. Romanus, who is said to have descended to him by a rope, and supplied him daily with provisions. The monks of a neighbouring monastery subsequently chose him for their abbot: their manners, however, not agreeing with those of Benedict, he returned to his solitude, whither many persons followed him and put themselves under his direction, and in a short time he was enabled to build no fewer than twelve monasteries. About the year 528 he retired to Monte Cassino, where idolatry was still prevalent, and where a temple to Apollo yet existed. Having converted the people of the adjacent country to the true faith, he broke the statue of Apollo, overthrew the altar, and built two oratories on the mountain, one dedicated to St. Martin, the other to St. John. Here St. Benedict also founded a monastery, and instituted the order of his name, which in time became so famous and extended all over Europe. It was here too that he composed his 'Regula Monachorum;' which does not, however, seem to have been confirmed till fifty-two years after his death, when Pope Gregory the Great gave his sanction to it.

Authors are not agreed upon the place where St. Benedict died; some say at Monte Cassino, others affirm it to have been at Rome, whither he had been sent by Pope Boniface. Stevens, in the 'Continuation of Dugdale's Monasticon,' places his death about the year 543, others in 547: the day, however, stands in the calendar fixed to March 21. Gregory the Great, in the second 'Book of his Dialogues,' has written a 'Life of St. Benedict,' and given a long detail of his supposed miracles. Dupin says that the 'Regula Monachorum' is the only genuine work of St. Benedict. Other tracts are, however, ascribed to him, particularly a 'Letter to St. Maurus,' a 'Sermon upon the Decease of St. Maurus,' a 'Sermon upon the Passion of St. Placidus and his Companions,' and a 'Discourse de Ordine Monasterii.' (See the Life by St. Gregory, already mentioned, reprinted in the *Acta Sanctorum* of the Bollandists, for the month of March, tom. iii. fol. Antv. 1658; Butler's *Lives of the Saints*, 8vo. Dubl. 1779, vol. iii. p. 231; Chalmers's *Biograph. Dictionary*, vol. iv. p. 433.) St. Gregory states that he received his account of St. Benedict from four abbots, the saint's disciples, namely Constantine, his successor at Monte Cassino, Simplicius, the third abbot of that house, Valentinian, the first abbot of the monastery of Lateran, and Honoratus, who succeeded St. Benedict at Sublaco.

BENEDICTINE ORDER. The exact year when the monks who followed the rule of St. Benedict were first established as an Order is unknown. The essence of the rule was that they were to live in a monastery subject to an abbot. The 'Histoire des Ordres Monastiques,' tom. v. 4to. Paris, 1718, upon Mabillon's authority, places the date of the monastery of Piombarole, near Monte Cassino, at least as early as the year 532, anterior to St. Benedict's death. The progress which this order made in the west, in a short time, was rapid. In France its interests were promoted by St. Maur or Maurus, in Sicily by St. Placide, in Italy by St. Gregory the Great, and in Frisia, at a later period, by St. Wilbrod. The reciprocal protection afforded to the interests of the papal see by the Benedictine Order and to the interests of the Benedictine Order by the Roman pontiffs, sufficiently account for the Order's advancement. There were nuns of this Order as well as monks; but the time and original institution of the Benedictine nuns is quite uncertain. (See Stevens's *Contin. of the Monasticon*, vol. i. p. 168.)

The Benedictine Order is said by many (see *Monast. Angl.* old edition, vol. i. p. 12, Reyner, *Apostol*, tr. i. p. 202, Stevens, vol. i. p. 164) to have been brought into England by St. Augustine and his brethren, A.D. 596, and to have continued from thence to the Dissolution under several improvements; but others (as Marsham in his *Propulaion* prefixed to the Monasticon, Patrick in his Additions to Gunton's *History of Peterborough*, pp. 234, 246, Hickes, *Dissert. Epistolaris*, pp. 67, 68, &c.) consider that the Benedictine rule was but little known in England till King Edgar's time, and never perfectly observed till after the Conquest. In the *Decem Scriptores*, col. 2232, it is said that St. Wilfrid brought it into England A.D. 666, and in the *Quindecem Scriptores*, and by Patrick in his Additions to Gunton, p. 247, with greater probability, that he improved the English church by it. It is expressly mentioned in King Kenred's charter (*Mon. Angl.* old edition, tom. i. p. 145) to the monks of Evesham, A.D. 709, and in the bull of pope Constantine granted in the same year to that monastery. (See *Mon. Angl.* ut supr., Wilkins, *Concil.* vol. i. p. 71, Spelm. vol. i. p. 213.) But Bede, who has given us a very accurate account of the state of religion in this island till A.D. 731, has nothing of it: nor is there any mention of it in the first regulation of the monks in England by Archbishop Cuthbert in the great synod at Cloveshoe. (Wilkins, *Concil.* vol. i. p. 94, Spelm. vol. i. p. 245, A.D. 747.) If Wilfrid really advanced this rule, it was not over all England, but in Kent only. (See Patrick's Additions to Gunton's *Peterborough*, p. 247.) And if the charter of King Kenred and the bull of pope Constantine be genuine (for all the antient grants produced by the monks are not so), this rule, which is there prescribed to the monks of Evesham, is said in the bull to 'have been at that time but little used in those parts.' So that, instead of the Saxon monks being all Benedictines, there were probably but few such till the restoration of monasteries under King Edgar, when St. Dunstan and St. Oswald (who had been a Benedictine monk at Fleury in France) not only favoured the monks against the secular clergy, but so much advanced the Benedictines that William of Malmesbury (*De Gestis Pontif.* l. iii.) says this order took its rise here in England from St. Oswald. The Ely historian (whose work is printed in Wharton's *Anglia Sacra*, vol. i. p. 604) says, that King Edgar gave Ethelwold the manor of Suthborne, now Sudborn, in Suffolk, to translate the rule of St. Benedict into English, which seems to confirm the opinion of its being then but little known.

All our cathedral priories were of this order, except Carlisle, and most of the richest abbeys in England. Reyner (*Apostolat.* vol. i. p. 217) says, that the revenues of the Benedictines were almost equal to those of all the other orders. Tanner (*Notit. Monast.* edit. Nasm. pp. li. lii.) enumerates one hundred and thirteen abbeys, priories, and cells of this order in England, the sum of whose revenues, at the time of the Dissolution, amounted to 57,892*l.* 1*s.* 11*d.*, besides seventy-three houses of Benedictine nuns, whose revenues amounted to 7985*l.* 12*s.* 1*d.*, making a total of 65,877*l.* 14*s.*

The Benedictines, says Tanner, were much against all new orders of religious. By the second Lateran council they were obliged to hold triennial chapters, which those of this nation generally held at Northampton. (See Widmore, *Hist. Westm. Ab.* pp. 79, 82.)

Fosbrooke, in his *British Monachism*, 4to. London, 1817, p. 109, has given an abstract of the Benedictine rule, chiefly from the *Sanctorum Patrum Regulæ Monasticæ*, 12mo. Louv. 1571. It evidently received enlargements at different times, the whole of which were consolidated in the concord of rules promulgated by Dunstan in the reign of Edgar. (See the 'Concordia Regularum S. Dunstani Cantuariensis Archiepiscopi,' printed by Reyner in his *Apostolatus Benedictinorum in Anglia*, Append. P. iii. p. 77, and republished in the first volume of Dugdale's *Monasticon.*) This concord of rules regulated the practice of the English monks till the year 1077. The Clugniacs, Cistercians, Grandmontines, Premonstratensians, and Carthusians, were, in reality, branches only of the Benedictine order, living under the rule of St. Benedict, but observing a different discipline. For a notice of the learning of the Benedictines, see St. Maur.

The habit of the Benedictine monks was a black loose coat, or a gown of stuff reaching down to their heels, with a cowl or hood of the same, and a scapulary; and under that another habit, white, as large as the former, made of flannel; with boots on their legs. From the colour of their outward habit the Benedictines were generally called Black Monks. (See Tann. *Notit. Monast.*, pref. p. viii.; and Fosbrooke, *Brit. Monach.* p. 382.) Stevens, in his *Continuation of the Monasticon*, vol. i. p. 164, says, the form of the habit of these monks was at first left to the discretion of the abbots, and that St. Benedict did not determine the colour of it. Dugdale, both in the *Monasticon* and in his *History of Warwickshire*, vol. i. p. 156, has given a representation of the Benedictine monk in his habit.

The habit of the Benedictine nuns consisted of a black robe, with a scapulary of the same, and under that robe a tunic of white or undyed wool. When they went to the choir, they had, over all, a black cowl, like that of the monks. Dugdale, in the *Monasticon*, has given an engraving of a Benedictine nun with her cowl: and Stevens, *Contin.* vol. i. p. 169, an engraving of another without her cowl.

BENEDICT I. succeeded John III. in the see of Rome, in the year 575. His name was Bonosus, and he was a native of Rome. Little is known of him except that he was on friendly terms with the Emperor Tiberius II., and that Rome in his time was threatened both by the Longobards and by the Vandals. He died in 578, and was succeeded by Pelagius II. (Platina, *Vitæ Pontificum.*)

BENEDICT II. succeeded Leo II. in 684. He waited nearly a year before his nomination, which took place in 683, was confirmed by the Emperor Constantine IV., without which confirmation he could not be consecrated. Constantine, however, exempted the Roman see from the customary tribute which was paid at the election of every new bishop, and he is said also to have ordered that in future the new bishops elected by the Roman clergy and people should be ordained, without waiting for the imperial confirmation. He also sent to Rome some locks of the hair of his two sons, Justinian and Heraclius, as a token of homage to the Roman see, which were received with great ceremony by the clergy and the people. Benedict is reported to have been pious and charitable, and well learned in the scriptures. He restored and adorned several churches at Rome, namely, those of St. Peter, Sta. Maria ad Martyres, &c. Benedict died in 685, and was succeeded by John V.

BENEDICT III. succeeded Leo IV. in 855. Between these two popes some writers, and Platina among the rest, have placed the famous female Pope Joan, whose story is now acknowledged by all parties to have been a fable first promulgated, not by Protestant writers, as is often imagined, but by one Martinus, a Pole, and a Cistercian monk, who was penitentiary to Pope Innocent IV. in the thirteenth century, and who wrote a *Chronicon Summorum Pontificum*, and another work on the antiquities of Rome, which is full of absurdities. (See Panvinio's able discussion of this much controverted point in a note to Platina's work.)

The election of Benedict III. was violently opposed by a party among the clergy of the Roman provinces, who nominated Anastasius, a Roman priest. The Emperor Louis II. being appealed to, sent his *missi* or deputies to inquire into the matter; but the deputies meeting first with the partizans of Anastasius, decided in his favour, and Anastasius making his solemn entrance into Rome, occupied the Lateran Palace, stripped Benedict of his pontifical garments, and put him in prison. The clergy of the city, however, persisted in their election of Benedict, and the people loudly supporting the same, the imperial deputies, probably better informed of the merits of the question, drove Anastasius away, and confirmed Benedict, who forgave his adversaries, except the bishop of Porto, who would not give up Anastasius, and was consequently superseded. During Benedict's pontificate, Rome suffered a great inundation from the river Tiber, which was followed by a destructive epidemic disease. The Saracens at the same time were ravaging Apulia and Campania. Benedict died in 858, and was succeeded by Nicholas I. Some particulars of this pope's life are found in Garampi's dissertation *De Nummo Argenteo Benedicti III.*

BENEDICT IV. succeeded John IX. about the year 900. The crown of Italy, after the extinction of the Carlovingian dynasty, was disputed between Berengarius Duke of Friuli, and Louis, son of Boson King of Arles or Provence. Louis, having obtained the advantage, came to Rome in 901, and was crowned Emperor and King of Italy by Benedict. But in the following year Berengarius, who had taken refuge in Germany, returned and defeated Louis at Verona, and took him prisoner. After this event, Benedict died in 903, and was succeeded by Leo V.

BENEDICT V. was elected in 964 by the Romans, in opposition to Leo VIII., while the latter was gone to the north of Italy to ask the Emperor Otho's support against his predecessor John XII., who, after being deposed by an assembly of the Roman clergy for his irregular conduct, had returned to Rome, and driven Leo from his see. John, after putting to death or cruelly mutilating several of his opponents, died suddenly, and the Romans, regardless of their previous election of Leo VIII., nominated Benedict. Otho quickly appeared before Rome with an army, and reduced the city by famine. A new assembly of the clergy was convoked, Benedict's election was declared null, and Leo was reinstated in his see. Benedict was exiled by Otho to Germany, and he died soon after at Hamburgh in 965. By several writers he is considered only as an intruder, but in the late Papal chronologies published in Italy we find him placed among the regular popes.

BENEDICT VI. succeeded John XIII. in 972. The Emperor Otho I. soon after dying in Germany, the Romans, released from the fear of that powerful sovereign, broke out into their wonted tumults, imprisoned Benedict, and a cardinal of the name of Boniface, surnamed Francone (Platina says a patrician of the name of Cincio or Cenci), caused him to be strangled in the castle of St. Angelo in 974. Cardinal Boniface assumed the papal dignity, but was shortly afterwards expelled, and fled to Constantinople. Donus II. is mentioned by some writers as the next pope, but nothing is known of him, except that he died after a few months, and was succeeded by

BENEDICT VII. of the family of Conti, who was elected in 975. He was bishop of Sutri at the time of his election. On being chosen pope, he assembled a council, and excommunicated the anti-pope Boniface. During his pontificate the Emperor Otho II. came repeatedly to Rome, while he was engaged in the war against the Greeks of Apulia and the Saracens of Calabria. Otho died at Rome in 983, and was buried in the vestibule of St. Peter's church. Benedict died about the same time, and was succeeded by John XIV. The chronology of the popes in the tenth century is rather confused, and the dates are not exactly ascertained.

BENEDICT VIII., of the family of Conti, who succeeded Sergius IV. in 1012, was a native of Tusculum. A rival candidate of the name of Gregory, after losing the election, raised a faction against Benedict, whom he drove out of Rome. Benedict, however, being supported by the Emperor Henry II., returned soon after, and in the following year, 1013, Henry and his consort Kunegund came to Rome, where they received the imperial crown from the hands of the pope. In 1016 the Saracens from Sardinia having landed on the coast of Tuscany, took the town of Luni, where they committed great ravages. Benedict assembled a force by sea and by land, attacked the Saracens, and defeated them: their chief Musat, or rather Musa, had time to escape, but his wife, whom the chroniclers call the queen, was killed, and the valuable jewels that adorned her head were sent by the pope to the Emperor Henry. This event led to the conquest of Sardinia by the Pisans, who were urged to it by the pontiff. In 1020 Benedict undertook a journey to Germany, for the purpose of inducing Henry to send an army into Italy to oppose the Greeks, who had become masters of Capua, Ascoli, and other places, and threatened to subjugate Rome itself. Henry came in the following year: he obtained several successes over the Greeks, and took Capua and Troja, and other towns of Campania and Apulia. Benedict died in 1024, and was succeeded by his brother, who assumed the name of John XIX.

BENEDICT IX., a relative, some say a nephew, of the two preceding popes, succeeded John XIX. in 1034. He was a boy at the time of his election, some say ten years old, but this is doubted by Muratori, who however, as well as Baronius, acknowledges that his election was irregular, owing to his youth, and that it was obtained through his family interest and through money, which was profusely lavished for the purpose by his father Alberico, a powerful baron. Benedict was distinguished by his licentiousness and profligacy, and by the state of anarchy in which Rome was plunged during his pontificate. The Romans at last expelled him in 1044, and chose in his stead John Bishop of Sabina, who took the name of Silvester III.; but six months afterwards Benedict returned at the head of a party, drove away his competitor, and excommunicated him. Perceiving, however, that he was held in detestation by the clergy and the people, he sold his dignity to John Gratianus, who assumed the name of Gregory VI. The Emperor Henry III., in order to put an end to these scandals, assembled a council at Sutri, which deposed all the three popes. Baronius says that Gregory VI. voluntarily renounced his claims for the peace of the church, and he places him in the series of legitimate popes. (See F. Hardouin's *History of the Councils*, concerning this of Sutri.) The original name both of Silvester and of Gregory being John, has led some writers into the error of inserting here a John XX. as another Antipope. Henry III. having entered Rome, accompanied by the fathers of the Council of Sutri, the latter, in conjunction with the clergy of Rome, elected Suidger Bishop of Bamberg, who took the name of Clement II., and was consecrated at Christmas, 1046. But in October of the following year Clement fell suddenly ill and died, and, as some suspected, of poison administered to him by the deposed Benedict, who immediately after forced himself again into the papal see, where he remained till the following July, 1048, when the Emperor Henry, at the request of the Romans, sent them Poppo Bishop of Brixen, who, on arriving at Rome, was consecrated, and assumed the name of Damasus II. But twenty-three days after his consecration he died at Palestrina, upon which the see of Rome remained vacant for more than half a year, until Bruno Bishop of Toul in Lorraine was elected in 1049, and assumed the name of Leo IX.. What became of Benedict afterwards is not clearly ascertained, nor the epoch of his death, but it is generally believed that he died in some convent. (See Muratori, *Annali d'Italia;* Peter Damianus, Baronius, and Pope Victor III.'s dialogue in the 18th vol. of the Lyons *Bibliotheca Patrum.*) The last, who was a contemporary, says positively that Benedict's first election was obtained through bribery; that he followed the steps of Simon Magus instead of those of Simon Petrus; that his conduct while pontiff was detestable; and that he sold the pontificate to Gregory VI. for a considerable sum of money. Gregory, after being deposed, went into exile to Germany, where he died in a convent. He was accompanied by the monk Hildebrand, who became afterwards known as Gregory VII.

BENEDICT X. (John Bishop of Velletri), a native of Capua, was elected by a faction after the death of Stephen IX., in 1058, but Hildebrand, Peter Damianus Bishop of Ostia, and other prelates, supported by the Empress Agnes, assembled a council at Siena, which nominated Gerard Bishop of Florence, who took the name of Nicholas II. Benedict did not submit till the following year, when Nicholas made his entrance into Rome. Panvinius and other writers do not place Benedict among the legitimate popes, but we find him in the chronological tables published in Italy.

BENEDICT XI. (Nicholas, Cardinal of Ostia) was a Dominican and native of Treviso. He was elected in 1303, after the death of Boniface VIII. He excommunicated those who had laid violent hands upon Boniface at Anagni, but he soon after forgave the Colonna family, and arranged the disputes of his predecessor with Philip the Fair, King of France. He sent Cardinal di Prato to Florence, to act as mediator between the factions which distracted that city. After a short pontificate of nine months, Benedict died at Perugia in 1304. The contemporary historians, and Dino Compagni in particular, speak highly of his character and virtues. He was succeeded by Clement V., after an interregnum of nearly eleven months.

BENEDICT XII. (Jacques Fournier, a native of France) succeeded John XXII. in 1334. The popes at that time resided at Avignon. Benedict laboured in earnest to reform the abuses and corruptions of the church, that had grown to an alarming extent under his predecessor. He was also inclined to accede to the entreaties of the Romans, and transfer the papal see again to Rome, but was prevented by the policy of the French King, Philip de Valois, supported by the influence of the numerous French cardinals at the papal court. His strictness in enforcing discipline among the monastic orders excited many enemies against him, who endeavoured to cast aspersions upon his character. He died at Avignon in 1342, and was succeeded by Clement VI. Several biographies of Benedict XII. are found in Baluze's *Lives of the Avignon Popes,* and in Muratori, *Rer. Ital. Scriptores.*

BENEDICT XIII. (Cardinal Orsini, Archbishop of Benevento) succeeded Innocent XIII. in 1724. He was simple in his habits and manners, strict in his morality, generous and charitable, and although zealous for maintaining the prerogatives of his see, yet conciliating and unwilling to resort to extremes. Unfortunately he bestowed his confidence upon Cardinal Coscia, a man of some abilities, but covetous and ambitious, and who became hateful to the Romans through his avarice and his abuse of the pope's favour. The people, however, knew how to distinguish between the favourite and his master, whom they respected for his virtues, his good intentions, his disinterestedness, and for the acts of beneficence and justice which he [illegible] The old dispute about the Bull *Unigenitus* still [illegible] the Church of France. [See CLEMENT XI.] Benedict [illegible]ceeded in reconciling in some measure the dispute[illegible] vailing on the Cardinal de Noailles, Archbishop of *Paris,* to accept the Bull, and by issuing another Bull, called *Pretiosus,* from its first word, in which he gave an explanation of the former, and an exposition of the doctrine of grace. In this pontificate King John V. of Portugal insisted on a cardinal's hat being bestowed on the Nuncio Bichi, who had been residing a long time at his court, but the congregation of cardinals being unfavourable to the grant, John broke off all correspondence with the court of Rome, drove away the subjects of the pope from his dominions, and forbade the remittance of the usual fees and tithes to Rome. The ecclesiastical affairs of Sicily also were in a state of great confusion, owing to the disputes between the *Tribunal de Monarchia* and the court of Rome on matters of jurisdiction. Benedict, by timely concessions, put an end to the quarrel. He also exerted himself to settle the controversy with the king of Sardinia respecting the right of nomination to several abbacies and other benefices in Piedmont, which, however, was not finally arranged till after his death. But he settled the dispute concerning the island of Sardinia, by waiving the pretensions of the papal investiture which had been put forth by Clement XI. He also obtained of the Emperor Charles VI. the restoration of Comacchio and its territory to the papal state. Lastly, Benedict showed himself anxious for the preservation of peace in Europe: he favoured, by means of his nuncios, the negotiations of Paris and Soissons in 1727-8, which led afterwards to the treaty of Seville in 1729 between France, Spain, England, and Holland, in which the successions of Tuscany and Parma were finally settled. Benedict increased the pension settled by his predecessors on the Pretender James Stuart, who had fixed his residence at Bologna. He died at the beginning of 1730, and was succeeded by Clement XII. Benedict XIII.'s works, including sermons written by him before his exaltation, were published at Rome in 3 vols. folio, 1728.

BENEDICT XIV. (Cardinal Prospero Lambertini of Bologna) succeeded Clement XII. in August, 1740. He was already favourably known for his extensive learning and for the suavity of his temper and manners. He began his pontificate by finally adjusting the long disputes with the court of Sardinia concerning the nomination to several abbacies and other benefices, besides certain ecclesiastical fiefs in Piedmont, which he gave up to the house of Savoy. (Botta, *Storia d'Italia,* lib. 41.) He restored likewise the good understanding between Rome and Portugal, and with the kingdom of the two Sicilies, which had been interrupted under his predecessors. He saw that the times were changed, and that the court of Rome could no longer enforce the obsolete pretensions of Gregory VII., or Innocent III.; he therefore, in his intercourse with foreign powers, assumed a tone moderate yet dignified, by which he won general confidence and respect. During the war of the Austrian succession he remained strictly neutral, and although he could not prevent the Spaniards and the Austrians, who were disputing the possession of the kingdom of Naples, from marching through his territories, on which they even fought a battle at Velletri, they stipulated not to enter his capital, and to spare, as far as it lay in the power of the respective commanders, the lives and properties of his subjects. Peace being at length restored to southern Italy, Benedict was enabled to turn his chief attention to the improvement of his own dominions. He encouraged learning, and was generous towards the learned. Rome became again in his time the seat of science and of the arts. The mathematicians Boscovich and Le Maire, the Cardinals Valenti, Querini, and Passionei, the philologist Quadrio, the architects Vanvitelli and Polani, and other distinguished men, were employed or encouraged by this pope. He embellished Rome, repaired churches, among others the splendid one of Santa Maria Maggiore, constructed magnificent fountains, that of Trevi among the rest, built the vast granaries near the Thermæ of Diocletian, and dug out the obelisk of the Campus Martius, which was afterwards raised by Pius VI., founded chairs of physics, chemistry, and mathematics in the University of Rome, added to the collection in the Capitoline Museum, established a school of drawing, enlarged the great hospital of S. Spirito, established academies for the instruction of the prelates of his court, in ecclesiastical history, in the canon law, in the knowledge of the rites and discipline of the church, &c. Nor did he neglect his native town Bologna, to whose Institute of Sciences he contributed by donations.

He instituted at Rome a congregation or board for the purpose of examining the character, morals, and other qualifications of candidates for vacant sees; and he was also very anxious for the maintenance of correct morals among his clergy. He found the treasury poor and encumbered, but, by reductions and economy, he re-established a balance in the finances of the state. He did nothing for his own family; and he is said to have forbidden his nephew, who was a senator of Bologna, coming to Rome. During the eighteen years of his reign Rome enjoyed peace, plenty, and prosperity, and half a century after his death the pontificate of Lambertini was still remembered and spoken of at Rome as the last period of unalloyed happiness which the country had enjoyed. Nor was Benedict careless of the welfare of other countries. He wrote, in 1746, to the Empress Maria Theresa in favour of the Genoese, who were subject to the most cruel exactions from the Austrian commanders; and he afterwards showed a like sympathy in favour of the poor Corsicans, who were in their turn oppressed by the Genoese. Benedict had a strong sense of moral justice, which made him hostile to violence and oppression. His tolerance is well known, and it exposed him to the censure of the rigorists among the College of Cardinals. Without exhibiting anything like indifference to the doctrines of the church of which he was the head, he showed urbanity and friendliness towards all Christians, of whatever denomination, whether kings or ordinary travellers, who visited his capital. His correspondence with the great Frederic concerning the ecclesiastical affairs of the province of Silesia, which that sovereign had conquered from Austria, was carried on by him in the most conciliatory and liberal spirit. The Protestants of Germany revered Benedict. With regard to France he carefully avoided every thing that could in the least encourage the fanatical party in that country in reviving the persecution against the Protestants of Languedoc. Seeing France distracted by quarrels between the Jesuits and the Jansenists, the court and the parliament, the priests and the philosophers, and lamenting amidst all this the licentiousness of Louis XV. and his courtiers, and the weakness and incapacity of the ministers, he used to exclaim that 'France ought indeed to be the best governed country in the world, for its government seemed to be left entirely to the care of Providence.' (Botta, *Storia d'Italia*, lib. 46.) He signed, in 1741, a concordat with Charles King of Naples, by which he checked the abuse of church immunities and *asyla*, allowed church property to be subject to taxation, restricted the ordination of priests, whose number in the kingdom was excessive, circumscribed the jurisdiction of the ecclesiastical courts, and established a mixed tribunal of churchmen and laymen for deciding on all contested questions in the interpretation of the concordat. This was the beginning of the great ecclesiastical reform which was effected in the kingdom of Naples by Charles III. and his son Ferdinand. (Colletta, *Storia del Reame di Napoli*.) He abolished the patriarchate of Aquileia, which was a source of disputes between the Venetians and the House of Austria; and he reduced the number of holidays, *feste di precetto*, which working-people were obliged to observe. Benedict was no favourer of the Jesuits, or rather of their worldly policy, and he is said to have given that society hints which, if followed, might have averted the catastrophe which overtook it after his death. Benedict was learned, not only in theology, but in history, in the classical writers, and in elegant literature, and he had a taste for the fine arts. Some of his numerous repartees, which he loved to utter in his own vernacular Bolognese dialect, are still familiar at Rome; and others may be found scattered in the various accounts of him given by contemporary travellers, especially by the Abbé Richard, in his *Voyage en Italie*. Lambertini may be said to have introduced a new system of temperate and conciliatory policy into the court of Rome, especially in its transactions with foreign powers, which has been in great measure followed by his successors. His works were published at Rome in 12 vols. 4to. The most remarkable are his treatise *De Servorum Dei Beatificatione et Beatorum Canonizatione*, in four books, a work full of historical and theological learning; *De Synodo Diocesana*, which is also much esteemed; *Institutiones Ecclesiasticæ*; *De Missæ Officio*, libri iii.: besides his *Bullarium*, or collection of bulls, issued by him, and several letters and dissertations in Italian; among others, a disquisition concerning the expediency of curtailing the number of holidays, which last, together with several controversial letters upon the same subject, were also published separately at Lucca, 1748, under the title of *Raccolta di Scritture concernenti la Diminuzione delle Feste di Precetto.* Benedict XIV. died on the 2nd of May, 1758, being past eighty years of age, and was succeeded by Clement XIII. See an account of the numerous academies he founded at Rome: *Notizia delle Academie erette in Roma per ordine della Santità di N. S. Papa Beneditto XIV.* Roma, 1740.

BENEDICT, ANTIPOPE (Pedro de Luna), a native of Aragon, was made a cardinal by Gregory XI. After the death of that pope, when the great schism broke out between Urban VI. and Clement VII., De Luna attached himself to the latter. After Clement's death in Avignon in 1394, the cardinals of his party elected De Luna as his successor, in opposition to Boniface IX., who had succeeded Urban at Rome, and he assumed the name of Benedict XIII. France and several other states which had acknowledged Clement, now acknowledged Benedict, with the understanding that he should renounce his dignity whenever required for the peace of the church. But De Luna had no intention of fulfilling his part of the engagement. Meantime, both Boniface and his successor Innocent VII. died at Rome, and the king of France and other sovereigns were anxious to put an end to the schism. The cardinals at Rome, however, elected Gregory XII., and he and Benedict excommunicated each other. France now renounced the cause of Benedict, and the cardinals of both parties agreed to assemble a council at Pisa, which deposed both popes in 1409, and elected Alexander V. Gregory, however, was still acknowledged by Ladislaus, king of Naples, and Benedict was acknowledged in Spain. Alexander V. died soon after, and the conclave assembled at Bologna, elected John XXIII. Soon after the council of Constance met, which assembly deposed John for his irregular conduct, and confirmed also the deposition of Gregory and Benedict. Martin V. was elected pope. Gregory submitted to the decision of the council, John was obliged to submit by force, but Benedict, who was in Spain, remained as tenacious as ever of his assumed dignity, and excommunicated all his antagonists. Alfonso, king of Aragon, acknowledged him, and Benedict resided at Peniscola with a few cardinals of his own appointment. At last, in 1424, Benedict died at the age of ninety. Some of his cardinals elected as his successor an obscure individual, whom they styled Benedict XIV., of whom nothing is known; while others appointed another successor, who called himself Clement VIII., but soon after made his submission to Martin V., who was at length acknowledged by the whole western church. (Dupin, *Histoire du Schisme*, and the histories of the Councils of Pisa and of Constance.)

BENEDICTION, the act of invoking the favour of God, prosperity, long life, and other blessings upon individuals. The word is derived from the Latin, *benedicere*, which originally meant 'to speak well,' or 'to praise or commend,' and was afterwards employed for 'to wish well,' (see Ducange's *Glossarium*.) The ceremony of blessing is of a very remote antiquity. We find in the Scriptures, that the patriarchs before they died, solemnly bestowed their blessing on their sons. Isaac giving by mistake to his younger son Jacob the blessing which he intended for his elder son Esau (Genesis xxvii.) is an interesting instance of this custom. In Numbers vii. 23-6, the words are specified in which the high priest was to bless the people of Israel. Aaron blessed the people, 'lifting his hand towards them.' (Leviticus ix.) Christ after his resurrection, and before parting from his disciples at Bethany, 'lifted up his hands and blessed them.' (St. Luke xxiv. 50.) In the early church, the bishop gave his blessing to the people with his hands extended towards them. In the Roman Catholic church it is the custom for the bishop to lift up his right hand towards the people with the fingers extended, and with it to describe the sign of the cross, in commemoration of the Redemption. This benediction, 'Benedictio super populum,' is also given by the bishop from the altar in the mass service, with the words 'Benedicat vos Omnipotens Deus.' The priests also give the benediction, but with some difference in the form and words, and they can only give it at mass, or while administering the sacrament, or in other solemn ceremonies; but the bishop has the power of giving it any where or upon any occasion he may think fit. In the Roman Pontificale are found the various forms of benediction. One of the most impressive instances of this ceremony is that of the pope in full pontificals, attended by the cardinals and prelates, giving his benediction 'Urbi et Orbi' on Easter Sunday after mass, from the great gallery in the front of St. Peter's church, while the vast area beneath is filled with kneeling spectators.

The benediction forms an essential part of many ceremonies of the Catholic church, such as the coronation of kings and queens, the confirmation of abbots and abbesses, the consecration of churches, altars, and sacramental vases. These are all performed by the bishop, and are accompanied by different ceremonies, such as anointing, imposing of hands upon the head of the person consecrated, &c. The benediction of church utensils, of bells, of sacerdotal garments, of churchyards, &c. may be performed by priests. The nuptial benediction, which is an essential part of the marriage ceremony, is given by the parish clergyman. The priests also in some instances give benediction to houses, fields, horses, cattle, &c., by sprinkling them with holy water. This custom of blessing those things which are for the use or support of men is of great antiquity. It is found in St. Gregory's 'Sacramentale,' and, before him, in that of Pope Gelasius I., who lived in the fifth century. The 'benedictio mensæ et ciborum,' was a general practice among all Christians before sitting down to dinner: the English custom of saying grace is a continuation of it.

There is also in Catholic churches a service which is commonly called, in Italy at least, 'the Benediction,' and is performed on particular days, and generally in the evening: after certain prayers being said or sung, the consecrated host is raised up by the officiating priest, who describes with it the sign of the cross towards the congregation.

The benedictorium is the vase containing the holy water, which is placed at the entrance of Catholic churches for the use of the people, who dip their fingers into it and cross themselves as they go in and out. The water is blessed by the priest, and is mixed with salt.

The pope begins his bulls and other communications addressed to Catholic individuals with the greeting 'Salutem et apostolicam benedictionem.' (See the Dictionary of Jurisprudence, art. *Benediction*, in the *Encyclopédie Methodique*, and also the Dictionary of Theology in the same collection.)

BENEER. A subdivision of the district of Sewad in the province or kingdom of Caubul, in Afghanistan. Beneer is separated from Sewad by steep hills, and is thinly inhabited by a tribe of Afghans. The district of Beneer, the modern boundaries of which are ill-defined, occupies a position about the 34th degree of north latitude, and the 70th degree of east longitude. It is described in the Ayîn-i-Akbari, under the name of Bembher, in the following manner. 'The length of Bembher is sixteen, and the breadth twelve coss,' (the coss varies considerably in different parts of India, being sometimes as little as one English mile, and in others places double that measure.) 'On the east lies Puckely, on the north Kinore and Cashghur, on the south Attock Benaris, and Sewad is the western extremity. There are two roads to it from Hindustan, one by the heights of Surkhaby, and the other by the Molondery hills.'

The river Burindroo, which traverses the centre of Beneer, enters the Indus about twenty miles above Torbela. A strip of land about one mile broad on each side of this river is of fertile quality, and being favourably circumstanced for irrigation, produces rice. The remainder of the country is rugged, yielding generally only a species of millet, but there are many small valleys, in which superior kinds of corn are produced. The slopes of hills are formed for the purpose of cultivation into terraces one over another. In these situations the plough cannot be introduced, neither is irrigation practicable. The principal agricultural implement used in these situations is the hoe, and as rain is the sole dependance of the cultivator for watering his fields, the harvests are precarious. (*Ayîn-i-Akbari*, by Abul Fazl; Elphinstone's *Embassy to Caubul.*)

BENEFICE, from the Latin *Beneficium*, a term applied both by the canon law and the law of England to a provision for an ecclesiastical person. In its most comprehensive sense it includes the temporalities as well of archbishops, bishops, deans and chapters, abbots and priors, as of parsons, vicars, monks, and other inferior spiritual persons. But a distinction is made between benefices attached to communities under the monastic rule (sub regulâ), which are called *regular* benefices, and those the possessors of which live in the world (in sæculo), which are thence called *secular* benefices. The writers on the canon law distinguish, moreover, between simple or sinecure benefices, which do not require residence, and to which no spiritual duty is attached but that of reading prayers and singing (as chaplainries, canonries, and chantries), and *sacerdotal* benefices, which are attended with cure of souls.

Lord Coke says, 'Beneficium is a large word, and is taken for any ecclesiastical promotion whatsoever.' (2 *Inst.* 29.) But in modern English law treatises the term is generally confined to the temporalities of parsons, vicars, and perpetual curates, which in popular language are called livings. The legal possessor of a benefice attended with cure of souls is called the incumbent. The history of the origin of benefices is involved in great obscurity. The property of the Christian church appears, for some centuries after the apostolic ages, to have been strictly enjoyed in common. It was the duty of the officers called deacons (whose first appointment is mentioned in *Acts*, cap. vi.) to receive the rents of the real estates, or *patrimonies* as they were called, of every church. Of these, as well as of the voluntary gifts in the shape of alms and oblations, a sufficient portion was set apart, under the superintendence of the bishop, for the maintenance of the bishop and clergy of the diocese; another portion was appropriated to the expenses of public worship (in which were included the charge for the repairs of the church), and the remainder was bestowed upon the poor. This division was expressly inculcated by a canon of Gelasius, pope or rather bishop of Rome, A.D. 470. (See Father Paul's *Treatise on Ecclesiastical Benefices*, cap. 7.) After the payment of tithes had become universal in the west of Europe, as a means of support to the clergy, it was enacted by one of the capitularies of Charlemagne, that they should be distributed according to this division. When the bishopricks began to be endowed with lands and other firm possessions, the bishops, to encourage the foundation of churches, and to establish a provision for the resident clergy, gave up their portion of the tithes, and were afterwards by the canons forbidden to demand it, if they could live without it. Although the revenues of the church were thus divided, the fund from which they were derived remained for a long time entirely under the same administration as before. But by degrees every minister, instead of carrying the offerings made in his own church to the bishop, for the purpose of division, began to retain them for his own use. The lands also were apportioned in severalty among the resident clergy of each diocese. But these changes were not made in all places or all at one time, or by any public edict, but by insensible degrees, as all other customs are introduced. (See Father Paul's *Treatise on Benefices*, cap. 9 and 10.) 'Some writers have attributed the origin of parochial divisions to a period as early as the fourth century; and it is not improbable that this change took place in some parts of the Eastern Empire, either in that or the succeeding age. Some of the constitutions of Justinian seem to imply that in his time (the beginning of the sixth century) the system of ecclesiastical property, as it existed in the East, was very similar to that which has prevailed in Catholic countries in modern times.' The churches, monasteries, and other pious foundations, possessed landed and other property (slaves among the rest), which, by the constitutions of Justinian, they were restrained from alienating, as they had been in the habit of doing to the detriment of their successors. (See *Authenticorum Collatio*, ii. 'on not alienating ecclesiastical lands.')

The general obscurity that hangs over the history of the Middle Ages prevents us from ascertaining, with precision, at what period the changes we have alluded to were introduced into the west of Europe. This, however, seems clear, that after the feudal system had acquired a firm footing in the west of Europe, during the ninth and tenth centuries, its principles were soon applied to ecclesiastical as well as lay property. Hence, as the estates distributed in fief by the sovereigns of France and Germany among their favoured nobles, were originally termed *beneficia* [see **Beneficium**], this name was conferred, by a kind of doubtful analogy, upon the temporal possessions of the church. Thus, the bishopricks were supposed to be held by the bounty of the sovereigns (who had by degrees usurped the right originally vested in the clergy and people of filling them up when vacant), while the temporalities of the inferior ecclesiastical offices were held of the bishops, in whose patronage and disposal they for the most part then were. The manner of investiture of benefices in those early times was probably the same as that of lay property, by the delivery of actual possession, or of some symbols of possession, as the ring and crozier, which were the symbols of investiture appropriated to bishopricks.

Benefices being thus endowed, and recognised as a species of private property, their number gradually multiplied during the ages succeeding that of Charlemagne. In England especially several causes contributed to the rise of parochial churches. 'Sometimes' (says Dr. Burn, *Eccles. Law*, title *Appropriation*) 'the itinerant preachers found encouragement to settle amongst a liberal people, and by their assistance to raise up a church and a little adjoining manse. Sometimes the kings, in their country vills and seats of pleasure or retirement, ordered a place of worship for their court and retinue, which was the original of royal free chapels. Very often, the bishops, commiserating the ignorance of the country people, took care for building churches as the only way of planting or keeping up Christianity among them. But the more ordinary method of augmenting the number of churches depended on the piety of the greater lords; who, having large fees and territories in the country, founded churches for the service of their families and tenants within their dominion. It was this that gave a primary title to the patronage of laymen; it was this made the bounds of a parish commensurate to those of a manor: and it was this distinct property of lords and tenants that by degrees allotted new parochial bounds, by the adding of new auxiliary churches.' [See ADVOWSON.]

It appears, however, from the last-mentioned author, that if there were any new fee erected within a lordship, or there were any people within the precinct not dependent on the patron, they were at liberty to choose any neighbouring church or religious house, and to pay their tithes and make their offerings wherever they received the benefits of religion. This by degrees gave rise to the arbitrary appropriation of tithes, which, in spite of positive enactment, continued to prevail till the end of the twelfth century, when Pope Innocent III. by a decretal epistle to the archbishop of Canterbury, enjoined the payment of tithes to the ministers of the respective parishes where every man dwelt. This injunction, though not having the force of a law, has been complied with ever since, so that it is now a universal rule of law in England, that tithes are due of common right to the parson of the parish, unless there be a special exemption. [For the nature of these special exemptions, see TITHES.]

The twelfth century was also the æra of an important change in the manner of investiture of ecclesiastical benefices in England. (See Blackstone, vol. ii. p. 23; Father Paul, c. 24.) Up to this time the simple donation of the patron was sufficient to confer a legal title to a benefice, provided the person to whom it was given was in holy orders, for otherwise he must be first presented to the bishop, who had power to reject him in case of unfitness; but the popes, who had in the eleventh and twelfth centuries successfully contended against every other species of ecclesiastical investiture being exercised by laymen, now procured that the presentation of the patron should not be of itself sufficient to confer an ecclesiastical benefice, even though qualified by the discretionary power of rejection (in case the benefice was given to a layman), which was already vested in the bishop. This was the origin of the ceremonies of *institution*, which is the mode of investiture of the spiritualities; and *induction*, which is the mode of investiture of the temporalities of a benefice. Where the bishop was the patron of the benefice, the two forms of *presentation* and *institution* were united in that of *collation*.

For the origin and nature of ecclesiastical patronage in England as a subject of property, the rules of law which apply to it as such, the limitations within which and the forms according to which it must be exercised, and the mode by which it may be vindicated; together with the respective rights of the bishop or ordinary, the archbishop, and the crown, in the case of lapse, see ADVOWSON; and also Burn's *Ecclesiastical Law*, art. *Advowson*, *Benefice*. But it may be mentioned in this place, that a recent stat. (3 & 4 Will. IV. c. 27) has made some important alterations in the law on this subject. 1. By the old law, suits for recovery of advowsons were not within the statutes of limitations; but the 30th sect. of the abovementioned act subjects them to a period of limitation of three successive incumbencies or sixty years, during which the enjoyment of the benefice has been by virtue of a title adverse to that of the person instituting the suit. By the 33rd section the utmost period within which an advowson can be recovered, is limited to a hundred years from the time of an adverse presentation, without any intermediate exercise of the right of patronage by the person instituting the suit, or by any persons from whom he derives his title. The 36th section of the act abolishes certain antient remedies for the disturbance of the right of patronage; so that except in certain cases, specified in the 37th and 38th sections of the act, the sole method of vindicating the right now is by writ of *Quare Impedit*. [See QUARE IMPEDIT.]

Although the popes, in denying to laymen the right of ecclesiastical investiture, had still left them in possession of the substantial part of the patronage of benefices, even this privilege was for some centuries not only very much questioned, but in many instances entirely wrested from them by papal encroachment. (Father Paul, c. 30, *et seq.*; Hallam's *Middle Ages*, vol. ii. c. 7.)

The first attacks by the popes upon the rights of private patrons (which took place towards the latter end of the twelfth century) assumed the form of letters of request called 'mandates' or 'expectatives,' praying that benefices might be conferred on particular individuals. What was first asked as a favour was soon after claimed as a right, and rules were laid down as to grants and revocations of expectatives. The popes next proceeded to claim the patronage of all benefices *vacantia in curiâ*, i. e. which fell vacant by the incumbents dying at the court of Rome. The number of these, through the management of that court, which contrived on various pretences to draw ecclesiastics of all ranks to Rome from different parts of Europe, became by degrees very considerable. But Clement V. in the beginning of the fourteenth century went beyond all his predecessors, by laying it down broadly as a maxim, that the full and free disposition of all ecclesiastical benefices belonged to the pope. (Clementines, lib. ii. tit. 5. c. 1; F. Paul, c. 35.) It followed as a consequence from this principle, that the pope could make reversionary grants or *provisions*, as they were called, during the lives of the incumbents; and that he could reserve such benefices as he thought fit for his own peculiar patronage. At the same time, dispensations from the canons against non-residence and pluralities, and permissions to hold benefices in commendam were freely granted, so that by these and similar means in some instances fifty or sixty preferments were held by the same person at once. The evils of this system were felt all over Europe. The best benefices were everywhere filled with Italian priests, ignorant alike of the language and habits of the people to whose spiritual wants they were bound to minister. England in particular suffered so much from papal encroachments during the reign of Henry III., that the English deputies at the Council of Lyons (about A.D. 1245) complained to the pope that the foreign clergy drew annually from England upwards of 70,000 marks. This remonstrance produced no effect, but the system at length became so intolerable, that a determined plan of opposition to it was gradually formed in the principal nations of western Europe. In this opposition our own ancestors took the lead, and their efforts were in the end completely successful. The parliament, assembled at Carlisle in the 35th year of Edward I., wrote a strong remonstrance to Pope Clement V. against the papal encroachments on the rights of patronage and the numerous extortions of the court of Rome. This remonstrance appears to have produced no effect, but it may be cited as a proof of the spirit of the times. The government of Edward II. was too feeble to act upon this spirit. The first prince who was bold enough to assert the power of the legislature to restrain the papal encroachments was Edward III. After complaining ineffectually to Clement VI. of the abuse of papal reservations, he (A.D. 1350) procured the famous Statute of Provisors (25 Ed. III. stat. 6) to be passed. This act provided that all elections and collations should be free according to law, and that in case any provision, collation, or reservation should be made by the court of Rome of any archbishoprick, bishoprick, dignity, or other benefice, the king should for that turn have the collation of such archbishoprick or other dignities elective, &c.

This statute was fortified by several others in this and the succeeding reigns, 27 Ed. III. stat. 1. c. 1; 38 Ed. III. stat. 1. c. 4; 3 Rich. II. c. 3; 7 Rich. II. c. 12 (which enacts that no alien shall be capable of being presented to any ecclesiastical preferment); 12 Rich. II. c. 15; 13 Rich.

II. stat. 2. c. 2 and 3; 16 Rich. II. c. 5; 2 Hen. IV. c. 3; 7 Hen. IV. c. 8; 3 Hen. V. c. 4. These statutes, which inflict very severe penalties on persons endeavouring to enforce the authority of papal bulls and provisions in England, are sometimes called, from the initial words of the writ issued in execution of the process under them, the statutes of *præmunire*; and the offence of maintaining the papal power is itself (according to Blackstone, vol. iv. p. 112) called by the name of *præmunire*. [See PRÆMUNIRE.] The statutes against papal provisions (though not very strictly enforced) remained unrepealed, in spite of the attempts of the popes and their adherents to obtain their abrogation.

The rights of ecclesiastical patronage having been thus solemnly vindicated by the English parliament, have, in their fundamental principles, remained unaltered to the present time. The ceremonies of *presentation* and *institution* in the case of lay patrons, and of *collation* where the bishop is patron, are still necessary to give a title to all benefices with cure of souls, except those which are technically called perpetual curacies and donatives; and the title so given is incomplete without corporal induction into possession of the temporalities of the benefices. There are, also, certain acts enjoined either by the canon law or statute, the non-performance of which will subject the incumbent to deprivation of the benefice into which he has been lawfully inducted.

There is no difference between institution and collation as to the action itself, but they differ somewhat in their respective consequences. Thus, by institution, the church is said to be full against all persons but the king, and if it has been full for the space of six months, this is a sufficient answer to any action by private persons, or even by the king, where he claims as a private patron and not by royal prerogative, as in case of lapse, or otherwise. But, by collation, the church is not full, so as to render a plea to that effect available in the temporal courts, except against the collator. Every clerk before institution or collation is required by the canon law to take the oath against simony, and the oath of canonical obedience to the bishop, and to declare by subscription his assent to the doctrine of the king's supremacy, to the Book of Common Prayer, and the Thirty-nine Articles. The subscription to the Thirty-nine Articles is also imposed by statute 13 Eliz. c. 12, upon all persons to be admitted to any benefice with cure of souls. Moreover, the statutes 1 Eliz. c. 1, and 1 Will. and Mary, c. 8, sec. 5, require that every person collated or promoted to any ecclesiastical benefice shall, before he takes upon himself to supply or occupy the same, take the oaths of allegiance and supremacy; and by statute 13 and 14 Car. II. c. 4 (commonly called the Act of Uniformity), every parson and vicar shall, before his admission to be incumbent, subscribe a declaration of conformity to the Liturgy of the Church of England as by law established.

The acts of institution or collation so far confer a right to the temporalities of the benefice, that the clerk may enter upon the glebe land and take the tithes, but he cannot sue for them or grant them until induction. By induction the church becomes full, even against the king, and the clerk is seised of the temporalities of the benefice, and invested with the full rights and privileges of a parson, *persona ecclesiæ*; but by the Act of Uniformity he must, within two months after he is in actual possession of his benefice, upon some Sunday, openly before his congregation, read the morning and evening prayers, and declare his assent to the Book of Common Prayer, on pain, in case of neglect or refusal, of being *ipso facto* deprived of his benefice. The same statute obliges him, on pain of deprivation, to read publicly, within three months after his subscription to the declaration of conformity to the Liturgy, the bishop's certificate of his having made such subscription, together with the declaration itself; but the statute 23 Geo. III. c. 28 makes an exception where the incumbent is prevented by some lawful impediment, to be allowed and approved of by the ordinary of the place. The same penalty of deprivation is imposed by 13 Eliz. c. 12, in case of an incumbent failing, within two months after induction, to read publicly in the church the Thirty-nine Articles, and to declare his assent to them. The 23 Geo. III. c. 28, provides, that, in case of sickness or other lawful impediment, it shall be deemed a sufficient compliance with the statute of Elizabeth if the incumbent reads the Articles, and declares his assent to them at the same time that he declares his assent to the Book of Common Prayer. Finally, by statute 1 Geo. I. sess. 2, c. 13, the parson must, within six months after his admission to the benefice, *take* the oaths of allegiance and abjuration in one of the courts at Westminster, or at the general quarter-sessions of the peace, on pain of being incapacitated to hold the benefice, and of incurring certain other disabilities therein specified. Such are the means by which a clerk's legal title as parson, rector, or vicar is acquired and maintained.

Every parson or rector of a parish with cure of souls, and where the parsonage is appropriated, every vicar, or perpetual curate, though in his natural capacity an individual, is in contemplation of law a body corporate, with perpetuity of succession. The rector or parson is entitled to the freehold of the parsonage house and glebe lands, as well as the tithes of the parish, except where a special exemption from the payment of tithes exists by prescription or otherwise; but owing to the practice of appropriation, which formerly prevailed to a great extent in England, and has been attended with very remarkable consequences, these are frequently vested in laymen, who have vicars or curates under them to perform the spiritual duties. [See ADVOWSON.] This custom was not confined to spiritual corporations aggregate, but deans and other officers in cathedrals, and in some places even parish priests, procured the privilege of appointing a vicar to perform the spiritual duties of the church, while its revenues were appropriated to themselves and their successors. Hence it happens that in some places a rector and vicar are instituted to the same church; in which case the rector is excused from duty, and the rectory is called a sinecure benefice, as being *sine curâ animarum*. (Burn's *Eccles. Law*. tit. Appropriation.) In order to effectuate an appropriation it was necessary that the patron should obtain the consent of the king and the bishop, as each of these had an interest in the patronage of the church in case of lapse, which, as a corporation never dies, could not take place after the appropriation; and upon the making an appropriation, an annual pension was reserved to the bishop and his successors, called an indemnity, and payable by the body to whom the appropriation was made. In an antient deed of appropriation preserved in the registry of the archbishop of Canterbury, the ground of the reservation is expressed to be for a recompense of the profits which the bishop would otherwise have received during the vacancy of the benefice. (Burn, *ibid.*)

After the appropriation the appropriators and their successors became perpetual parsons of the church; but if the corporation were dissolved, the perpetuity of persons being gone, the appropriation ceased, and the church recovered its rights.

This principle would have come into extensive operation at the time of the dissolution of the monasteries in England, if the legislature had not expressly provided against it. By the statutes 27 Henry VIII. c. 28, and 31 Henry VIII. c. 13, the possessions of these religious houses, and by a subsequent statute, 32 Henry VIII. c. 24, those of the Knights of St. John of Jerusalem, were all vested in the crown. In each of these statutes parsonages and tithes are expressly included, and the first two confirm the royal grants made or hereafter to be made of this property. Tithes are also included in two subsequent statutes, 37 Henry VIII. c. 4, and 1 Edward VI. c. 14, by which the possessions of chantries and religious fraternities are given to the crown. The last of these statutes empowers the king's commissioners, therein referred to, to ordain and sufficiently endow vicars in perpetuity in parish churches annexed to the religious fraternities whose possessions were confiscated by that act; and also to endow in perpetuity a schoolmaster or preacher in such places where the religious fraternities or incumbents of chantries were bound by the original foundation to keep a schoolmaster or priest. The property acquired by the crown from the above-mentioned sources, and from the dissolution of alien priories in the reign of Henry V., was freely bestowed by the kings of England, especially Henry VIII., not only upon spiritual persons and corporations, but upon laymen. Hence it is that there are so many instances in England at the present time of not merely the right to tithes, but the property of entire rectories being vested in laymen. These benefices are sometimes called lay but more commonly impropriate rectories, as being (according to Spelman) improperly in the hands of laymen. The rector is, in that case, termed the impropriator; but this appellation is now indiscriminately applied not only to lay individuals and corporations, but to all spiritual persons and corporations, who, either by virtue of antient appropriations, or by grants from the crown since the dissolution of the religious fraternities, are entitled to the tithes and other revenues of the church, without performing any spiritual duties. By statute 32 Henry VIII. c. 7, the remedies which the law had provided in the ecclesiastical courts for the subtraction of tithes are communicated to laymen, and their title to tithes is put on the same footing with that to land, by giving them the same or similar actions for vindicating their estates in those and other ecclesiastical profits against all adverse claimants whatsoever. In short, tithes and other fruits of benefices when vested in laymen, are liable to the same process of execution for debt, and subject to the same incidents of alienation, descent, escheat, and forfeiture as all other incorporated real property. Moreover, by statute 43 Eliz. c. 2, tithes impropriate are made liable to poor-rates. They are also included in the Land-tax Acts; and by the late statute of Limitations, 3 and 4 Will. IV. c. 27, actions and suits for their recovery are subject to the same periods of limitation as those for the recovery of land.

Another consequence of appropriation in England, besides the vesting the possessions of the church in laymen, was the endowment of vicarages. The appropriating corporations at first used to depute one of their own body to reside and officiate in the parish churches by turns or by lot, and sometimes by way of penance; but as this practice caused scandal to the church, especially in the case of monastic orders whose rules were thereby violated, the monks by degrees ceased to officiate personally in the appropriated churches, and this duty was committed to stipendiary vicars or curates, who were, however, removable at the will of the appropriators. One of the numerous pretexts urged by the monastic bodies for obtaining appropriations had been that they might be the better enabled to keep up hospitality in their respective houses, and that they might relieve the poor. These duties, however, were so far neglected as to give rise to general discontent. In addition to which the officiating priests were very poorly paid, and oppressed with hard service, and consequently unable to answer the calls of hospitality and charity. At length the legislature, by way of a partial remedy to these evils, enacted (15 Richard II. c. 6), 'That in every licence for the appropriation of a parish church it should be expressed that the diocesan bishop should ordain, in proportion to the value of the church, a competent sum to be distributed among the poor parishioners annually, and that the vicarage should be sufficiently endowed.' Still, as the vicar was removable at pleasure, he was not likely to insist too strictly on the legal sufficiency of the endowment. Therefore, to establish the total independence of vicars upon the appropriators, the statute 4 Henry IV. c. 12, provided, 'That from thenceforth in every church appropriated there should be a secular person ordained vicar perpetual, canonically instituted and inducted, and covenably (fitly) endowed by the discretion of the ordinary, to do divine service, and to inform the people, and to keep hospitality there; and that no religious, *i. e.* regular priest, should in anywise be made vicar in any church appropriated.' From the endowments made in pursuance of this statute have arisen all the vicarages that exist at the present day. The title of the vicar to tithes and other ecclesiastical dues, such as Easter offerings (which are said to be due to the parson or vicar of common right), and customary payments for marriages, burials, and baptisms, depends primarily upon the deed of endowment. As, however, the rector and vicar are persons equally capable in law of holding such property, the deed is not always conclusive evidence in any question that may arise between these parties as to their respective rights; but it is said, that where either of them has for a long time had undisputed enjoyment of any particular portion of the tithes or other fruits of the benefice, which is not consistent with the terms of the original deed, a variation of that deed by some subsequent instrument may be presumed in favour of such long enjoyment. The endowments of vicarages have generally consisted of a part of the glebe-land of the parsonage, and what are technically called the small tithes of the parish. In some places, also, a portion of the great tithes has been added to the vicarages. [For the legal distinction between great and small tithes, see TITHES.]

A vicarage by endowment becomes a distinct benefice, of which the patronage is vested in the impropriator or sinecure rector, and is said to be appendant to the rectory. It follows that the vicar, being endowed with separate revenues, is enabled to recover his temporal rights without the aid of the patron.

The loss of the original Act of Endowment is supplied by prescription; *i. e.* if the vicar has enjoyed any particular tithes or other fruits by constant usage, the law will presume that he was legally endowed with them.

If the impropriator, either by design or mistake, presents the vicar to the parsonage, the vicarage will be dissolved, and the person presented will be entitled to all the ecclesiastical dues as rector. [On the subject of the dissolution of vicarages, see VICARAGE.]

It is to be observed that the statute 4 Henry IV. c. 12, did not extend to appropriations made before the first of Richard II. Hence it happens that in some appropriated churches no vicar has ever been endowed. In this case the officiating minister is appointed by the impropriator, and is called a perpetual curate. He enters upon his official duties by virtue of the bishop's licence only, without institution or induction. It appears, moreover, from Dr. Burn (*Eccles. Law*, tit. 'Curate'), that there were some benefices which, being granted for the purpose of supporting the hospitality of the monasteries (*in mensas monachorum*), and not appropriated in the common form, escaped the operation of the statute of Henry IV. In this case, according to the same author, the benefices were served by temporary curates belonging to the religious houses, and sent out as occasion required; and sometimes the liberty of not appointing a perpetual vicar was granted by dispensation, in benefices not annexed to tables of the monasteries. When such appropriations, together with the charge of providing for the cure, were transferred (after the dissolution of monasteries) from spiritual societies to single lay persons (who, being incapable of serving them themselves, were obliged to nominate a person to the bishop for his licence to serve the cure), the curate by this means became so far perpetual as not to be removable at the pleasure of the impropriator, but only for such causes as would occasion the depriving of a rector or vicar, or by the revocation of the bishop's licence. (Burn, *ibid.*) Though the form of licences to perpetual cures expresses that they last only during the bishop's pleasure, the power of revocation, thus reserved to the bishop, has seldom, if ever, been exercised.

There is another kind of perpetual curacy which arises from the erection in a parish of a chapel of ease subject to the mother church. But the curacies of chapels of ease are not benefices in the strict legal sense of the word, unless they have been augmented out of the fund called Queen Anne's Bounty. The officiating ministers are not corporations in law with perpetuity of succession, as parsons, vicars, and other perpetual curates. Neither are chapels of ease subject to lapse, although the bishop may, by process in the ecclesiastical courts, compel the patrons to fill them up. But the statute 1 Geo. I. sess. 2. c. 10, provides that all churches, curacies, or chapels, which shall be augmented by the governors of Queen Anne's Bounty, shall be from thenceforth perpetual cures and benefices, and the ministers duly nominated and licensed thereunto shall be in law bodies politic and corporate, and have perpetual succession, and be capable to take in perpetuity: and that if suffered to remain void for six months they shall lapse in like manner as presentative livings. [See CHAPEL; CURATE.]

The district churches built in pursuance of several recent acts (as 58 Geo. III. c. 45; 59 Geo. III. c. 134; 3 Geo. IV. c. 72; 5 Geo. IV. c. 91; 7 and 8 Geo. IV. c. 72; 1 and 2 Will. IV. c. 38; 2 and 3 Will. IV. c. 61) are made perpetual cures, and the incumbents corporations.

A donative is a spiritual preferment, whether church, chapel, or vicarage, which is in the free gift of the patron, without making any presentation to the bishop, and without admission, institution, or induction by mandate from the bishop or any other; but the donee may by the patron, or by any other authorised by the patron, be put into possession. Nor is any licence from the bishop necessary to perfect the donee's title to possession of the donative, but it receives its full effect from the single act and sole authority of the donor. The chief further peculiarity of donatives is their exemption from episcopal jurisdiction.

The manner of visitation of donatives is by commissioners appointed by the patron. If the patron dies during the vacancy of a donative benefice, the right of nomination descends to his heir-at-law, and does not belong to his executors, as is the case with the patronage of presentative livings. Donatives, if augmented by Queen Anne's Bounty, become liable to lapse, and also to episcopal visitation. (Statute 1 Geo. I. sess. 2, c. 10.) But no donatives can be so augmented without the consent of the patron in writing, under his hand and seal. Both perpetual curates and incumbents of donatives are obliged to declare their assent to the Thirty-nine Articles and the Book of Common Prayer, in the manner prescribed by the statute 13 Eliz. c. 12, and the Act of Uniformity above-mentioned, and must also take the oaths of allegiance, supremacy, and abjuration, according to the provisions of statutes 1 Geo. I. sess. 2, c. 13, and 9 Geo. II. c. 26; and the right of patronage, both of perpetual curacies and donatives, is to be vindicated by writ of *Quare Impedit*. (Burn's *Eccles. Law*, tit. 'Donative.')

Neither the augmentation nor the alienation of benefices with cure of souls has ever been favoured by the policy of the English law. To prevent the former was one of the objects of the statutes of Mortmain, one of which (23 Hen. VIII. c. 10) expressly makes void all assurances of lands in favour of parish churches, chapels, &c.

It might have been reasonably expected that, at the time of the dissolution of monasteries, the clergy would have received back those revenues which, being originally vested in them for religious purposes, had been subsequently appropriated by the monks. Such a measure, however, was not agreeable to the temper either of King Henry VIII. or his parliaments. When that king came to a rupture with the pope, he resolved to free his dominions from the payment of first fruits and tenths to the papal treasury. The first of these taxes consisted of one year's whole profits of every spiritual preferment, according to a valuation of benefices made by the pope's authority: the second, of the tenth part of the annual profit of each benefice, according to the same valuation. The payment of these to the pope was prohibited by statute 25 Henry VIII. c. 20: and the next year by statute 26 Henry VIII. c. 3, the whole of the revenue arising therefrom was annexed to the crown. The last-mentioned statute directed these taxes to be paid according to a new valuation of ecclesiastical benefices to be made by certain commissioners appointed for the purpose. This valuation is what is still called the valuation of the king's books. The statute 26 Henry VIII. c. 3, was confirmed by statute 1 Eliz. c. 4. [See First Fruits and Tenths.]

The subsequent proceedings of Henry VIII., after the appropriation of the possessions of the monasteries, tended rather to enrich the collegiate and other corporations aggregate with the revenues of the church, than to revest them in their antient possessors. Nor was the latter object the aim of his successors, until more than a century after his death; but after the restoration of Charles II., the scandal of lay impropriations gave rise to some relaxation of the statutes of mortmain. Thus by statute 17 Car. II. c. 3, power was given to lay impropriators of tithes to annex such tithes to, or settle them in trust for, the parsonage or vicarage of the parish church to which they belonged, or for the perpetual curate, if there was no vicarage endowed: and by the same statute, in cases where the settled maintenance of the parsonage or vicarage, with cure, did not amount to the full sum of 100*l.* a year, clear of all charges and reprizes, the incumbent was empowered to purchase for himself and his successors, lands and tithes, without license of mortmain. Another statute of the same reign (29 Car. II. c. 8) confirms, for a perpetuity, such augmentations of vicarages and perpetual curacies as had been already made for a term of years by ecclesiastical corporations, on granting leases of impropriatory rectories. The act also confirms future augmentations to be made in the same manner, subject to a limitation which has since been taken off by statute 1 and 2 Will. IV. c. 45, by which the provisions of 29 Car. II. c. 8 have been considerably extended. But the principal augmentation of the revenues of the church was made under the provisions of the statute 2 and 3 Anne, c. 11. By this act, and by the queen's letters-patent made in pursuance of it, all the revenue of the first fruits and tenths was vested in trustees, for the augmentation of small benefices. This fund is what is usually called Queen Anne's Bounty, and has since been further regulated by statutes 5 Anne, c. 24; 6 Anne, c. 27; 1 Geo. I. sess. 2, c. 10; 3 Geo. I. c. 10.

The trustees, who are certain dignitaries of the church, and other official personages for the time being, are incorporated by the name of 'the governors of the Bounty of Queen Anne, for the augmentation of the maintenance of the poor clergy,' and have authority to make rules for the distribution of the fund, which rules are to be approved of by the king under his sign manual. Every person having any estate or interest in possession, reversion, or contingency, in lands or personalty, is empowered to settle such estate or interest, either by deed enrolled or will, upon the corporation, without licence of mortmain; and the corporation are empowered to admit benefactors to the fund into their body. (For the principal rules established by the corporation, with respect to augmentations and the operation of these rules, see Burn's *Eccles. Law*, tit. 'First Fruits and Tenths.')

The 1 Geo. I. sess. 2, c. 10, renders valid agreements made with benefactors to Queen Anne's Bounty, concerning the right of patronage of augmented churches in favour of such benefactors, where the agreements are made by persons or bodies corporate having such an interest in the patronage of such churches as the act renders necessary; but an agreement by a parson or vicar must be made with consent of his patron and ordinary. The governors are also empowered by the same statute to make agreements with patrons of donatives or perpetual cures for an augmented stipend to the ministers of such benefices when augmented, to augment vacant benefices, and with the concurrence of the proper parties, to exchange lands settled for augmentation.

It should be observed that a modern statute of mortmain, the Statute of Charitable Uses, 9 Geo. II. c. 36, imposed certain forms, a strict compliance with which was necessary in all gifts to Queen Anne's Bounty, whether by deed or will. But these restrictions have been removed by statute 43 Geo. III. c. 107, as far as respects gifts of real property for augmentation of the bounty; and a recent provision for the augmentation of benefices not exceeding 150*l.* per annum is made by 46 Geo. III. c. 133, which discharges all such benefices from the land-tax, without any consideration being given for the discharge, with a proviso that the whole annual amount thus remitted shall not exceed 6000*l.*

The alienation of the temporalities of benefices, even in perpetuity, was not forbidden by the common law, provided it were made with the concurrence of the principal parties interested, viz. the parson, patron, and ordinary. Thus, at the common law, lands might have become exempt from the payment of tithe by virtue of an agreement entered into between the tithe-payer and the parson or vicar, with the necessary consent, for the substitution of land in lieu of tithe. But the statute 13 Eliz. c. 10 prohibits, among other bodies corporate, parsons and vicars from making any alienation of their temporalities beyond the life of the incumbent, except by way of lease for twenty-one years, or three lives, 'whereupon the accustomed yearly rent or more shall be reserved and payable yearly during the said term.' Further restrictions are imposed by the stat. 18 Eliz. c. 11, which requires that where any former lease for years is in being, it must be expired, surrendered, or ended within three years next after the making of the new lease, and all bonds and covenants for renewing or making leases contrary to this and the last-mentioned statute are made void. The stat. 14 Eliz. c. 11, as to houses in towns, extends the term specified in the 13 Eliz. c. 10 to forty years, but prohibits leases of such houses in reversion, and allows of absolute alienation by way of exchange. But the consent of patron and ordinary is still necessary in order to make the leases of parsons and vicars binding upon their successors. It is said that about the time when these statutes were passed, it was a practice for patrons to present unworthy clergymen to their vacant benefices, on condition of having leases of those benefices made to themselves at a very low rate. The consequences of this were not unlike what ensued from the appropriation of benefices by monastic corporations: the incumbents did not reside, and the churches were indifferently served by stipendiary curates. To remedy this evil, it was provided by stat. 13 Eliz. c. 20 (made perpetual by 3 Car. I. c. 4), that no lease of a benefice with cure should endure longer than while the lessee should be ordinarily resident and serving the cure, without absence for more than eighty days in any one year, but should immediately, upon non-residence, become void; and that the incumbent should forfeit one year's profits of the benefice, to be distributed among the poor: but the statute contains an exception of the case where a parson, allowed by law to have two benefices, demises the one, upon which he is not most ordinarily resident, to his curate. The 18 Eliz. c. 11, provides that process of sequestration shall be granted by the ordinary to obtain the profits so forfeited. By stat 14 Eliz.

c. 11, bonds and covenants, and by stat. 43 Eliz. c. 9, judgments entered into or suffered in fraud of the stat. 13 Eliz. c. 20, are made void.

The 13 Eliz. c. 20, also renders void all charges upon ecclesiastical benefices by way of pension or otherwise. This last provision has been held to extend to mortgages and annuities, even if made only for the life or incumbency of the mortgager. But the strictness of the laws prohibiting all alienations by or in favour of ecclesiastical persons, has in modern times been somewhat relaxed by the legislature for purposes of public convenience. Thus the General Inclosure Act, 41 Geo. III. c. 109, and the Land-tax Redemption Act (42 Geo. III. c. 116, amended by 45 Geo. III. c. 77, 50 Geo. III. c. 58, 53 Geo. III. c. 123, 54 Geo. III. c. 17, and 57 Geo. III. c. 100) confer ample powers of purchase and alienation for such purposes.

Other acts, as 17 Geo. III. c. 53 (amended by 21 Geo. III. c. 66, and 5 Geo. IV. c. 89), empower ecclesiastical incumbents, with consent of patron and ordinary, to raise money by sale or mortgage of the profits of the benefice, for a term, for the purpose of building and repairing parsonage houses; and the governors of Queen Anne's Bounty are permitted to advance money for the same object. (See also 43 Geo. III. c. 108, and 51 Geo. III. c. 115.)

Again, the stat. 55 Geo. III. c. 147 (amended by 1 Geo. IV. c. 6, 6 Geo. IV. c. 8, and 7 Geo. IV. c. 66) empowers incumbents, with consent of patron and ordinary, and according to the forms prescribed by the act, to exchange their parsonage houses and glebe lands, and to purchase and annex to their benefice other parsonage houses and glebe lands. (See also 56 Geo. III. c. 141.) And by the above-mentioned stat. 1 and 2 Will. IV. c. 45, rectors and vicars are enabled to charge their benefices in favour of chapels of ease within their cures.

Although an ecclesiastical benefice cannot be alienated for the satisfaction of the incumbent's debts, the profits may be sequestrated for that purpose, even where the debt arises from an annuity which the incumbent has attempted to charge upon the benefice. (Vide 2 Barn. and Adolp. 734.) And this is the ordinary practice upon a judgment against a clergyman in one of the temporal courts. The writ of *fieri facias* issues against him as in the case of a layman, but the sheriff returns that he is a beneficed clerk, having no lay fee: upon which a writ of *levari facias* issues to the bishop of the diocese, by virtue of which the profits of the benefice are sequestrated until the whole debt is satisfied. (See SEQUESTRATION.)

In case of a beneficed clergyman seeking his discharge under the insolvent act, the assignees of his estate must apply for a sequestration, in order to render the profits of the benefice available for the payment of his debts. (See 7 Geo. IV. c. 57, s. 28.)

The duties and liabilities of spiritual persons come more properly under the head of CLERGY, but it is not inconsistent with the subject of the present article to mention the non-residence of spiritual persons upon their benefices, which (besides being cognizable in the ecclesiastical courts) is visited with severe penalties by different acts of parliament. The principal of the old enactments on the subject is stat. 21 Hen. VIII. c. 13 (amended and enlarged by 25 Hen. VIII. c. 16; 28 Hen. VIII. c. 13, and 33 Hen. VIII. c. 28), which imposes certain penalties upon persons wilfully absenting themselves from their benefices for one month together, or two months in the year.

But this act excepts the chaplains to the king and royal family, those of peers, peeresses, and certain public officers, during their attendance upon the household of such as retain them; and also all heads of colleges, magistrates, and professors in the universities, and all students under a certain age residing there *bonâ fide* for study. And the king may grant dispensations for non-residence to his chaplains, even when they are not attending his household. The residence intended by the law must be in the parsonage house, if there be one; but if there be no house of residence, the incumbent must reside within the limits of the benefice, or of the city, town, or parish where the benefice is situate, provided such residence be within two miles from the church or chapel of the benefice; and in all such cases a residence may be appointed by the bishop, even without the limits of the benefice. These acts (which extend also to archdeaconries, deaneries, and dignities in cathedral and collegiate churches) have been consolidated and amended by stat. 57 Geo. III. c. 99. By this act, every incumbent absenting himself from a benefice with cure, without licence, for the period of three months consecutively, or at several times for so many days as are equal to this period, and abiding elsewhere than at some other benefice, forfeits for an absence exceeding three months, but not above six months, one-third of the annual value of the benefice, clear of all outgoings except the curate's salary. Absences of a longer duration are subjected to proportional penalties, and the whole of the penalty in each case is given to the party suing, together with such costs as are allowed by the practice of the court where the action is brought. All who were exempt from residence before the last statute are still exempt, and the exemption is extended to several others, including public officers in either of the two universities, and tutors and public officers in any college. Students in the university are exempted till they are thirty years of age; and the king's prerogative to grant dispensations for non-residence to his chaplains is not affected by the statute. But no person can have the benefit of an exemption, unless he make a notification of it every year, within six weeks from the 1st of January, to the bishop of the diocese. Besides the exemptions, the bishop may grant a licence for non-residence for the illness or infirmity of an incumbent, his wife, or child, and for other causes specified in the act; and if the bishop refuses a licence, the incumbent may appeal to the archbishop. The bishop may also grant licences for non-residence for causes not specified in the act, but in that case the licences must be allowed by the archbishop. Licences may be revoked, and no licence can continue in force above three years from the time of its being granted, or after the 31st of December in the second year after that in which it is granted. The act also contains directions with respect to the lists of exemptions and licences for non-residence, which are to be kept in the registry of each diocese for public inspection.

The act 57 Geo. III. c. 99 provides also for the appointment of licensed curates in benefices, the incumbents of which are absent with or without licence or exemption, and regulates the salaries of such curates upon a scale proportioned to the value of each benefice, and the number of the population within its precincts; and in all cases of non-residence from sickness, age, or other unavoidable cause, the bishop may fix smaller salaries at his discretion.

There are other liabilities which parsons, vicars, and other spiritual persons necessarily incur in respect of their benefices. Thus, by 43 Eliz. c. 2, they are rateable in respect of their benefices for the relief of the poor; and, although the burden of the repairs of the body of the church falls upon the parishioners, the rector (and, where the parsonage is appropriated, the impropriator) is liable for the repairs of the chancel. And the stat. 35 Ed. I. sess. 2, the object of which was to prohibit rectors from cutting down trees in churchyards, contains an express exception of the case where such trees are wanted for the repair of the chancel.

Besides the liability implied in the last-mentioned prohibition, all ecclesiastical incumbents are liable for dilapidations. A dilapidation is said to be the pulling down or destroying in any manner any of the houses or buildings belonging to a spiritual living, or suffering them to run into ruin or decay, or wasting or destroying the woods of the church, or committing or suffering any wilful waste in or upon the inheritance of the church. Such proceedings may be prevented by the spiritual censures of the ordinary; and the profits of the benefice may be sequestered until the damage be repaired; and the Court of Chancery will, at the suit of the patron, grant an injunction to restrain this as well as every other species of waste. Or the next incumbent may recover damages for dilapidations either in the Spiritual Court, or in an action on the case at common law against his predecessor, or, if he be dead, against his personal representatives.

The remedies for the subtraction of tithes given by the law of England to the clergy are sufficiently ample. Thus stat. 2 and 3 Ed. VI. enables them either to recover the tithes themselves in the Spiritual Courts, together with the double value of such tithes in addition, or to recover the treble value in the temporal courts. Some recent statutes, and particularly 53 Geo. III. c. 127, and 7 Geo. IV. c. 15, have also given a summary remedy for the recovery of tithes under a certain amount before two justices of the peace, who are empowered to levy them by distress. But questions of title to tithes belong to the temporal courts only, and are generally determined by a suit on the equity side of the Court of Exchequer. The subject of the different species of defence to suits of this nature will be more properly considered under the head of TITHES; but it should be observed that by the old law, upon the principle of 'nullum tempus occurrit ecclesiæ,' there was no period of limitation to these suits, so that the church could, at any distance of time, recover land or tithes, which it could be proved to have enjoyed within legal memory, *i. e.* since the accession of Richard I. To remedy this with respect to tithes, the stat. 2 and 3 Will. IV. cap. 100, after appointing periods of limitation for tithe suits by the king, by lay persons, and corporations aggregate, whether spiritual or temporal, provides that in all such suits by spiritual persons or corporations sole, a claim of discharge from the payment of tithes by the customary commutation called a *modus*, or of a total exemption by prescription, shall be indefeasible upon evidence showing that the *modus* was paid or exemption had for the whole time that two persons in succession may have held the benefice in respect of which tithes are claimed, and for not less than three years after the appointment, institution, or induction of a third person thereto. And it is further provided, that if the period of the holding of such two persons be less than sixty years, it shall be necessary, in order to establish the *modus* or the exemption, to show its existence for so long a time as with that period shall make up the full period of sixty years; and also for the further period of three years from the appointment, institution, or induction of a third person to the same benefice. The statute contains an exception for the cases where it shall be proved that the *modus* was paid, or the exemption had, by consent evidenced by some deed or writing.

And with respect to actions and suits for recovery of lands or rents by parsons, vicars, or other spiritual corporations sole, the 29th sect. of 3 and 4 Will. IV. c. 27 subjects them to the period of limitation of two successive incumbencies, together with six years after the appointment of a third person to the benefice, or in case of this period not amounting to sixty years, then to the full period of limitation of sixty years.

Having thus shown how possession of the different kinds of benefices in England is acquired and maintained, and what are the principal legal incidents of such possession, it remains to consider how benefices may be vacated or avoided. And this may happen several ways: 1. By the death of the incumbent; 2. By resignation, which is made into the hands of the ordinary, except in the case of donatives, which must be resigned into the hands of the patron, who alone has jurisdiction over them. The resignation must be absolute, unless it be for the purpose of exchange, in which case it may be made on the condition that the exchange shall take full effect. Where two parsons wish to exchange benefices, they must obtain a licence from the ordinary to that effect; and if the exchange is not fully executed by both parties during their lives, all the proceedings are void. (See Burn, *Eccles Law*, tit. *Exchange*.) 3. A benefice may be avoided by the incumbent's being promoted to a bishoprick; but the avoidance in this case does not take place till the actual consecration of the new prelate. The patronage of the benefice so vacant belongs for that turn to the king, except in the case of a clergyman, beneficed in England, accepting an Irish bishoprick: for no person can accept a dignity or benefice in Ireland until he has first resigned all his preferments in England; so that in this case the patron, and not the king, has the benefit of the avoidance. The avoidance may be prevented by a licence from the crown to hold the benefice in commendam. Grants in commendam may be either temporary or perpetual. They are said to be derived from an antient practice in the Roman Catholic church, whereby, when a church was vacant, and could not be immediately filled up, the care of it was commended by the bishop or other ecclesiastical superior to some person of merit, who should take the direction of it until the vacancy was filled up, but without meddling with the profits. This practice, however, in process of time being abused for the purpose of evading the provisions of the canon law against pluralities, became the subject of considerable complaint, and of some restraints, by the authority of popes and councils, and particularly of the celebrated Council of Trent in the sixteenth century. (Vide Father Paul's *Treatise on Benefices*.) A benefice may be granted in commendam to a bishop after consecration, but then the patron's consent must be obtained, in order to render the commendam valid. [See COMMENDAM.] If the incumbent of a donative be promoted to a bishoprick, no cession takes place, but it seems that he may retain the donative without a commendam. (See Viner's *Abr.* tit. *Presentation*, K. 6.)

4. If an incumbent of a benefice with cure of souls accepts a second benefice of a like nature without procuring a dispensation, the first, by the provisions of the canon law, is so far void, that the patron may present another clerk, or the bishop may deprive; but till deprivation no advantage can be taken by lapse. And the stat. 21 Hen. VIII. c. 13 provides, that where a person, having a benefice of the value of 8*l.* per annum or upwards, according to the valuation of the king's books, accepts any other, the first shall be adjudged void, unless he obtains a dispensation in conformity with the provisions of the statute. And dispensations not in conformity with the statute are declared void, and heavy penalties are imposed upon persons endeavouring to procure them. But by virtue of such dispensations, spiritual persons of the king's council may hold three benefices with cure, and the other persons qualified by the statute to receive dispensations may each hold two such benefices.

The persons who may receive dispensations are the king's chaplains, those of the queen and royal family, and other persons who are allowed by the statute to retain a certain number of chaplains, and also the brethren and sons of all temporal lords, the brethren and sons of knights, and all doctors and bachelors of divinity and law, admitted to their degrees in due form by the universities. The privilege is not extended to the brethren and sons of baronets, as the rank of baronet did not exist at the time when the statute was passed. [See CHAPLAIN.]

The statute expressly excepts deaneries, archdeaconries, chancellorships, treasurerships, chanterships, prebends, and sinecure rectories. Donatives are within the statute, if a donative is the first living; but if a donative is the second living taken without a dispensation, the first is not made void by the statute, the words of which are 'instituted and inducted to any other,' words not applicable to donatives. But it seems that both in the cases excepted by the statute, and in the case where the second living is a donative, a dispensation is equally necessary in order to hold both preferments, as otherwise the first would be voidable by the canon law.

The stat. 36 Geo. III. c. 83 has brought chapels and churches, augmented by Queen Anne's bounty, within the Statute of Pluralities, by enacting that such churches and chapels shall be considered as presentative benefices, and that the license to serve them shall render other livings voidable in the same manner as institution to presentative benefices. It appears that both by the common law, and by the provisions of stat. 37 Hen. VIII. c. 21, and 17 Char. II. c. 3, a union or consolidation of two benefices into one might with consent of patrons, ordinaries, and incumbents, be made in such a manner as not to be affected by the Statute of Pluralities. (See CHURCH, and Burn's *Eccles. Law*, tit. *Union*.)

For the manner of obtaining dispensations from the archbishop, and for the form of such dispensations, and of the confirmation thereof by the lord chancellor, and the provisions which the canon law requires to be inserted in such dispensations, see Burn's *Eccles. Law*, title *Plurality*.

5. Another mode of avoidance of a benefice, is by deprivation under a sentence of an ecclesiastical court. The principal causes on which sentence of deprivation is usually founded, are heresy, blasphemy, gross immorality; or conviction of treason, murder, or felony.

6. A benefice may be avoided by act of the law; as where the incumbent omits or refuses to subscribe the Thirty-Nine Articles, or declaration of conformity to the Liturgy, or to read the Articles or Book of Common Prayer, in pursuance of the statutes which render those acts necessary. But the most remarkable mode of avoidance which is to be classed under this head, is that for simony, in pursuance of the stat. 31 Eliz. c. 6. By this statute for the avoiding of simony, it is among other things enacted, that if any patron, for any sum of money, reward, profit, or benefit, or for any promise, agreement, grant, bond, of or for any sum of money, reward, gift, profit, or benefit, shall present or collate any person to an ecclesiastical benefice with cure of souls or dignity, such presentation or collation shall be utterly void, and the crown shall present to the benefice for that turn only. The statute also imposes a penalty upon the parties to the simoniacal contract to the amount of double the value of a year's profit of the benefice, and for ever disables the person corruptly procuring or accepting the benefice from

enjoying the same. And by stat. 12 Anne, sess. 2. c. 12, a purchase by a clergyman, either in his own name or that of another, of the next presentation *for himself*, is declared to be simony, and is attended with the same penalties and forfeiture as are imposed by the statute of Elizabeth. Upon the construction of this statute of Elizabeth it has been held, that if the next presentation can be shown to have been purchased with the intention of presenting a particular person, who, upon a vacancy taking place, is presented accordingly, this fact is sufficient to render the transaction simoniacal. An exception has indeed been made in the case of a father providing for his son by the purchase of a next presentation, but the principle of this exception has lately been denied. (Vide 2 B. & C. 652.)

The circumstance of the incumbent being at the point of death at the time of the contract, may also vitiate the transaction; except where the fee simple of the advowson is purchased, in which case it has been decided that the knowledge of the state of the incumbent's health does not make the purchase simoniacal.

It has been a question much agitated in our courts, whether a presentation is valid where the person presented enters into a bond or agreement, either generally to resign the benefice at the patron's request, or to resign it in favour of a particular person specified in the instrument. After several contrary decisions in the courts below, it was finally decided by the House of Lords towards the latter end of the last century, that general bonds of resignation were simoniacal and illegal. A similar decision has lately been made by the same tribunal with respect to bonds of resignation in favour of specified persons. As there is no objection on the grounds of public policy to the last-mentioned instruments, if restrained within due limits, the interference of the legislature has been thought necessary in order to regulate transactions of this nature. On this account, after a retrospective act (7 & 8 Geo. IV. c. 25) had been passed, to remedy the hardships that might otherwise have been occasioned by the last-mentioned judgment of the House of Lords, it was finally enacted by the 9 Geo. IV. c. 94, that every engagement, *bonâ fide* made for the resignation of any spiritual office or living, in favour of a person, or one of two persons to be specially named therein, being such persons as were mentioned in a subsequent section of the act, should be valid and effectual in the law, provided such engagement were entered into before the presentation of the party entering into the same. By the section referred to, where two persons are specially named in the engagement, each of them must be, either by blood or marriage, an uncle, son, grandson, brother, nephew, or grandnephew of the patron (provided the patron is not a mere trustee), or of the person for whom the patron is a trustee, or of the person by whose direction the presentation is intended to be made, or of any married woman whose husband in her right is patron, or of any other person in whose right the presentation is intended to be made. The deed containing the engagement to resign must be deposited for inspection with the registrar of the diocese wherein the benefice is situated, and every resignation made in pursuance of such an engagement must refer to the same, and state the name of the person for whose benefit it is made and becomes void, unless that person is presented within six months. The statute is limited in its operation to cases where the patronage is strictly private property.

There are certain benefices of which the patronage is either by custom or act of parliament vested in certain public officers or corporations. Thus, the lord chancellor has the absolute patronage of all the king's livings which are valued at 20*l*. per annum or under in the king's books. It is not known how this patronage of the chancellor was derived; but it appears from the rolls of parliament in the 4th Ed. III., that the chancellor at that time had the patronage of all the king's livings of the value of 20 marks or under, and it is not improbable that at the time of making the new valuation of benefices in the reign of Henry VIII., a new grant was made to the chancellor by the crown, in consideration of the altered value of ecclesiastical property. By stat. 3 James I. c. 5, popish recusants are disabled from exercising any right of ecclesiastical patronage, and the patronage of livings in the gift of such persons is vested in the two universities, according to the several counties in which the livings are situate. This disability was confirmed by the subsequent statutes 1 Will. & Mary, c. 26, 12 Ann. sess. 2. c. 14, and extended to cases where the right of patronage was vested in a trustee for a papist; and is not removed (along with the other disabilities affecting Roman Catholics) by stat. 10 Geo. IV. c. 7. But the last-mentioned act provides, that where any ecclesiastical patronage is connected with any office in the gift of the crown, which office is held by a Roman Catholic, the patronage, so long as the office is so held, shall be exercised by the archbishop of Canterbury.

Though the stat. 10 Ann. c. 12 restored the rights of patronage in Scotland (which had been abolished by the act of the Scotch parliament which established the presbyterian form of church government at the beginning of Will. III.'s reign), this law was so unpopular that it was for a long time resisted, and became almost nugatory. The people gradually assumed to themselves the privilege of approving of their pastors before they were inducted; and this popular sanction, which was denominated a *call*, was regarded as indispensable, and as possessing more authority than the presentation of the patron. The General Assembly of the Church of Scotland in 1752 (chiefly through the influence of the historian Robertson) passed a vote censuring this practice, and vindicating the rights of patronage as established by the legislature. (See Stewart's *Life of Robertson*.) It seems, however, to have been the occasional though not uniform practice of that church subsequently (notwithstanding positive law) to require a certain concurrence of the people before the person presented to a benefice was invested with the cure of souls. (See Smith's *Wealth of Nations*, book v. chap. 1.) This concurrence appears, however, to have been, in a great measure, a matter of form, until a recent determination of the General Assembly declared that a call should be indispensable in all cases. The Scotch law upon this subject is quite unsettled, and obviously requires the interference of the legislature. The church of Ireland being the same with that of England, the ecclesiastical polity of each is in its main principles the same. The same law of ecclesiastical patronage, the same classification of benefices, the same circumstances of lay impropriations, and in short, the same ecclesiastical privileges and disabilities may prevail in each country. But a most important alteration in the distribution of the revenues of the Irish church was effected by the 3 & 4 Will. IV. c. 37, amended by 4 & 5 Will. IV. c. 90. By this act certain ecclesiastical commissioners are established as a corporation, for the augmenting of small livings out of the funds, which come into their hands by virtue of the act, and for other ecclesiastical purposes. The funds in question are to arise, partly from the revenues of certain bishopricks which are abolished, and the surplus revenues of the rest above certain limits fixed by the act; partly from the money paid by the tenants of lands held under bishops' leases renewable for ever, for a conversion of such leasehold interest into a perpetuity; and partly from a tax levied on all ecclesiastical dignities and benefices, according to a scale of taxation specified in a schedule to the act; in consideration of which tax all first fruits are abolished. The commissioners are invested with extraordinary powers by the act. Thus, they have authority to disappropriate benefices united to dignities, and to unite them to vicarages in lieu thereof. They have also the power of suspending the appointment to benefices which are in the gift either of the crown, of archbishops, bishops, or other dignitaries, or of ecclesiastical corporations, where it appears that divine service has not been performed within such benefices for three years before the passing the act. The subject of the better regulation of the revenues and discipline of the Irish church still (1835) engages the attention of the legislature.

We have already mentioned the attempts of the popes to acquire the right of patronage to all ecclesiastical benefices in Europe, and the successful measures that were taken in England for resisting their pretensions. After ineffectual attempts had been made at the councils of Constance and Basle in 1414 and 1433 to check the papal encroachments, each of the principal European governments seems to have asserted in some measure its own ecclesiastical independence, either by entering into concordats with the pope, or assuming the right of controlling his pretensions by national legislation. The latter course seems to have been adopted by Spain towards the end of the fifteenth century. (See Hallam's *Middle Ages*, vol. ii. p. 361.) The emperor of Germany in 1448 entered into a concordat at Aschaffenburg with the pope, which is said to be still the law of the Catholic states of Germany. By this treaty the pope ob tained the right of collation to all benefices that fell vacant during six alternate months of the year. By the Pragmatic Sanction of Charles VII. of France, published in 1438, all mandates and reservations with respect to benefices in that country were abolished for the future. This ordinance was followed, in the beginning of the sixteenth century, by the concordat of Francis I. and Leo X., which remained till the time of the French revolution a fundamental law of the Gallican church. By this treaty the pope gave up his indefinite claims to the patronage of benefices, and received a small stipulated patronage in return; and the substantial part of the patronage of bishoprics was vested in the crown. The modern concordat of Pius VII. with Napoleon, though destructive of the liberties of the Gallican church, does not appear, so far as respects the right of the pope to interfere with the patronage of benefices, to be a material innovation upon the concordat of Francis I. [See CONCORDAT.]

For the numerous abuses with respect to the patronage, acquisition, and transmission of benefices that prevailed in the Roman Catholic Church, especially in Italy, during the fifteenth and sixteenth centuries, see Father Paul's *Treatise on Benefices*, cap. 44-46.

The Council of Trent in 1547 attempted to reform some of these evils, as that of pluralities and commendams, hereditary succession to benefices, and non-residence: but left the great abuse of papal reservations untouched. The consequence of this, according to Father Paul (cap. 50), was that in his time (at the beginning of the seventeenth century) the reservations were multiplied to such a degree, that the pope had five-sixths of the benefices in Italy at his disposal, with very reasonable hopes that the remaining sixth would go the same way. In confirmation of this statement, the same author gives a list of the benefices which at that time came under the pope's patronage by reservations; and concludes with saying, 'Whoever shall put these reservations together will be found to have done the pope no wrong in the calculation, and that he hath at least five times as many collations as all the other collators put together.'

The following Table is abstracted partly from a Parliamentary Return presented to the House of Commons in 1834, and partly from the Report of the Commissioners appointed to inquire into the Ecclesiastical Revenues of England and Wales, published June, 1835:—

A.	COUNTIES.	Number of Parishes	Churches and Chapels.	Population.	B. £	C.	D. £	E.
St. Asaph, 143	Salop (part)	9	9	16,735	42,592	43	3,564	2
	Carnarvon (part)	3	3	1,796				
	Denbigh (part)	58	62	68,825				
	Flint (part)	19	19	45,665				
	Merioneth (part)	11	11	9,934				
	Montgomery (part)	39	39	48,201				
		139	143	191,156				
Bangor, 123	Anglesey	72	76	48,325	35,064	61	4,928	.
	Carnarvon (part)	63	69	64,652				
	Denbigh (part)	16	17	13,195				
	Merioneth (part)	21	22	25,381				
	Montgomery (part)	7	8	12,159				
		179	192	163,712				
Bath and Wells, 430	Somerset (part)	479	493	403,795	120,310	231	18,578	13
Bristol, 253	Dorset	259	263	159,272	77,056	135	10,668	3
	Gloucester (part)	38	42	72,369				
	Somerset (part)	1	1	405				
		298	306	232,026				
Canterbury, 346	Bucks (part)	4	4	2,053	123,946	174	14,656	2
	Essex (part)	4	4	4,875				
	Kent (part)	306	311	289,222				
	Middlesex (part)	15	15	15,241				
	Oxford (part)	2	2	470				
	Suffolk (part)	3	3	4,524				
	Surrey (part)	15	15	71,007				
	Sussex (part)	20	20	17,880				
		369	374	405,272				
Carlisle, 124	Cumberland (part)	78	98	112,653	22,487	44	3,681	3
	Westmoreland (pt.)	22	31	22,349				
		100	129	135,002				
Chester, 630	Chester	138	142	334,391	169,495	267	23,239	4
	Cumberland (part)	41	45	50,170				
	Lancaster	231	292	1,336,854				
	Westmoreland (pt.)	34	36	32,692				
	York, N. Rid. (pt.)	55	73	60,823				
	„ E. Rid. (pt.)	22	32	53,072				
	Denbigh (part)	1	1	1,609				
	Flint (part)	8	10	14,347				
		530	631	1,883,958				
Chichester 267	Sussex (part)	289	302	254,460	82,673	122	9,440	3
St. David, 409	Hereford (part)	8	8	3,371	60,653	207	11,464	7
	Brecon	135	143	47,763				
	Cardigan	68	72	64,780				
	Carmarthen	98	115	100,740				
	Glamorgan (part)	23	23	37,190				
	Montgomery (part)	2	2	2,743				
	Pembroke	143	149	81,425				
	Radnor (part)	46	46	19,719				
	Monmouth (part)	2	3	720				
		525	561	358,451				
Durham, 192	Cumberland (part)	1	2	6,858	74,457	98	8,556	2
	Durham	72	112	253,910				
	Northumb. (pt.)	67	100	209,165				
		140	214	469,933				
Ely, 150	Cambridge (part)	157	159	132,727	56,495	75	6,583	2
	Norfolk (part)	1	1	995				
		158	160	133,722				
Exeter, 613	Cornwall	211	221	300,938	194,181	323	28,759	16
	Devon	270	490	494,478				
		681	711	795,116				
Gloucester 293	Gloucester (part)	295	239	314,065	81,552	143	11,405	3
	Wilts (part)	1	1	1,447				
		296	330	315,512				
Hereford, 321	Hereford (part)	211	219	167,840	93,552	157	12,995	7
	Monmouth (part)	2	2	5,588				
	Salop (part)	106	116	71,878				
	Worcester (part)	17	18	12,710				
	Montgomery (part)	5	5	3,379				
	Radnor (part)	5	6	4,932				
		316	366	206,327				
Llandaff, 192	Glamorgan (part)	98	100	89,422	36,347	113	6,749	.
	Monmouth (part)	123	128	91,822				
		221	228	181,244				
Lichfield and Coventry, 610	Derby	174	176	237,170	170,104	307	24,948	5
	Salop (part)	104	104	122,486				
	Stafford (part)	230	232	402,042				
	Warwick (part)	142	143	283,783				
		650	655	1,045,481				
Lincoln, 1251	Bedford	127	127	95,483	373,976	629	48,347	18
	Bucks (part)	205	206	142,111				
	Herts (part)	75	75	78,742				
	Hunts	97	97	53,192				
	Leicester	252	251	197,003				
	Lincoln	604	607	317,465				
	Northampton (part)	4	4	2,125				
	Oxford (part)	3	3	10,986				
	Rutland (part)	3	3	2,257				
	Warwick (part)	..	1	104				
		1370	1377	899,468				
London, 640	Bucks (part)	4	4	2,365	267,742	351	35,118	2
	Essex (part)	398	398	312,632				
	Herts (part)	56	56	64,599				
	Middlesex (part)	192	231	1,343,089				
		650	689	1,722,685				
Norwich, 1026	Cambridge (part)	11	14	9,286	331,750	521	38,510	37
	Norfolk (part)	684	698	389,059				
	Suffolk (part)	483	498	291,793				
		1178	1210	690,138				
Oxford, 196	Oxford (part)	207	237	140,700	51,395	103	7,954	8

A. Diocese and number of Benefices in each returned to the Commissioners, including sinecure Rectories, but exclusive of Benefices annexed to other Preferments. Total Number of Benefices, 10,517. B. Aggregate Amount of the gross Incomes of Incumbents in each Diocese, exclusive as before mentioned. Total, 3,193,498*l*. C. Number of Curates in each Diocese. Total, 5,227. D. Amount of Stipends to Curates in each Diocese. Total, 424,549*l*. E. Number of Benefices in each Diocese not returned to the Commissioners. Total, 178.

A.	COUNTIES.	Number of Parishes.	Churches and Chapels.	Population.	B. £	C.	D. £	E.
Peterboro', 293	Northampton (part)	289	291	177,211	98,881	139	11,266	6
	Rutland (part) .	46	47	17,128				
		335	338	194,339				
Rochester, 94	Cambridge (part) .	1	1	1,942	44,565	60	6,551	2
	Kent (part) . .	106	110	189,933				
		107	111	191,875				
Salisbury, 398	Berks	151	160	145,389	131,255	223	18,174	11
	Wilts	299	313	238,709				
	Gloucester (part) .	1	1	585				
		451	474	384,683				
Winchester, 419	Hants	269	320	314,280	153,995	202	19,858	7
	Surrey (part) . .	139	144	415,327				
		408	464	729,607				
Worcester, 223	Salop (part) . .	1	1	11,839	73,255	111	9,002	3
	Stafford (part). .	3	3	8,470				
	Warwick (part) .	71	73	52,723				
	Worcester (part) .	155	183	198,655				
		230	260	271,687				
York, 891	Northumb. (part) .	4	5	13,747	223,220	390	29,553	12
	Notts	210	216	225,327				
	York, E. Rid. (part)	228	248	204,253				
	„ N. Rid. (part)	126	152	129,933				
	„ W. Riding .	173	255	923,278				
		741	876	1,496,538				

Total Number of Parishes, 11,077; of Churches and Chapels, 11,825; Population, 13,897,187.

A. Diocese and Number of Benefices in each returned to the Commissioners, including sinecure Rectories, but exclusive of Benefices annexed to other Preferments. Total Number of Benefices, 10,517. B. Aggregate Amount of the gross Incomes of Incumbents in each Diocese, exclusive as before mentioned. Total, 3,193,498*l.* C. Number of Curates in each Diocese. Total, 5,227. D. Amount of Stipends to Curates in each Diocese. Total, 424,519*l.* E. Number of Benefices in each Diocese not returned to the Commissioners. Total 178.

The Annual Average for each person upon the Total Gross Income returned is 303*l.*; and the Annual Average upon the Total Net Income returned is 285*l.* The Annual Average of the Curates' Stipends is 81*l.*

The Total Number of Benefices in England and Wales, including those not returned to the Commissioners, but exclusive of those annexed to other Preferments (21 in number), is 10,718. Of these Benefices 297 are under 50*l.*; 1629 from 50*l.* to 100*l.*; 1602 from 100*l.* to 150*l.*; 1354 from 150*l.* to 200*l.*; 1979 from 200*l.* to 300*l.*; 1326 from 300*l.* to 400*l.*; 830 from 400*l.* to 500*l.*; 954 from 500*l.* to 750*l.*; 323 from 750*l.* to 1000*l*; 134 from 1000*l.* to 1500*l.*; 32 from 1500*l.* to 2000*l.*; 18 from 2000*l.* and upwards. Of these last, one is the rectory of Stanhope in the diocese of Durham, of the net annual value of 4843*l.*; and another is the rectory of Doddington in the diocese of Ely, of the net annual value of 7306*l.* The diocese of Sodor and Man is included in the total number of benefices.

The Total Gross Income of the Benefices in England and Wales, including those not returned, and calculated upon the Average of those returned, is 3,251,159*l.*; and the Total Net Income of the same is 3,055,451*l.*

If the amount of the Curates' Stipends, which is included in the Income of the Incumbents, is subtracted therefrom, the Net Income returned will be reduced to 2,579,961*l.*, giving an Average of 241*l.* to each Incumbent.

Table classing the Patronage of Benefices, and showing the Number possessed by each Class.

DIOCESES.	Crown.	Archbishops and Bishops.	Deans and Chapters, or Ecclesiastical Corporations Aggregate.	Dignitaries and other Ecclesiastical Corporations sole.*	Universities, Colleges, and Hospitals, not Ecclesiastical.	Private Owners.	Municipal Corporations.
St. Asaph . . .	2	120	. .	2	1	19	
Bangor	6	78	1	7	3	29	
Bath and Wells .	21	29	39	103	23	224	4
Bristol	12	15	11	42	14	159	10
Canterbury . . .	18	148	26	36	14	87	2
Carlisle	4	20	27	19	3	54	
Chester	26	34	34	227	13	299	6
Chichester . . .	19	31	21	49	15	130	
St. David's . . .	63	102	16	61	12	159	
Durham	12	45	36	28	4	66	
Exeter	2	31	21	13	46	39	
Gloucester . . .	63	44	69	117	11	309	5
Hereford	29	30	35	40	26	133	3
Lichfield & Coventry .	26	36	26	54	11	179	
Lincoln . . .	53	18	10	122	6	391	5
Llandaff	156	73	63	177	102	688	
London	14	6	28	19	7	118	
Norwich	75	86	58	105	68	277	
Oxford	95	85	47	124	86	596	13
Peterborough . .	12	13	22	16	69	78	
Rochester . . .	31	18	12	40	32	171	
Salisbury . . .	10	15	17	8	4	44	
Winchester . . .	35	39	44	67	60	154	
Worcester . . .	30	58	15	79	53	197	
York	29	14	38	39	15	98	
Sodor and Man .	103	57	61	257	33	897	5
	15	8	. .	. .	. .	1	
Total . .	952	1248	787	1851	721†	5096	53

The above classification comprises only the patronage *returned* to the Commissioners. There are 178 non-returns, and 86 returned omitting the patronage.

As the patronage is frequently divided between different classes of patrons, and is included under each, it is obvious that the aggregate total of the above numbers will not agree with the total number of benefices.

* This includes the patronage or nomination exercised by rectors and vicars.

† This number does not comprise the livings in the patronage of the dean and canons of Christ Church, which is included among the deans and chapters; and it is further to be observed, that united livings, and livings with chapels annexed, have in either case been treated as single benefices.

Table, classing the Appropriations and Impropriations; showing the Number possessed by each Class, and the Number of Cases in each Diocese in which the Vicarage is partly or wholly endowed with the Great Tithes.

DIOCESES.	Crown.	Archbishops and Bishops.	Deans and Chapters, or Ecclesiastical Corporations Aggregate.	Dignitaries and other Ecclesiastical Corporations sole.	Universities, Colleges and Hospitals	Private Owners.	Municipal Corporations.	Vicarages partly endowed.	Vicarages wholly endowed.
St. Asaph .	..	12	10	8	. .	27	..	1	
Bangor . .	..	11	7	7	. .	29	..	3	
Bath & Wells	1	9	27	36	. .	105	4	5	8
Bristol . .	..	1	16	11	2	48	2	2	3
Canterbury .	..	48	46	12	8	49	1	2	7
Carlisle . .	..	8	30	3	2	28	..	3	1
Chester . .	2	21	28	5	15	113	..	6	3
Chichester .	..	7	11	19	5	67	..	8	12
St. David's .	1	18	20	49	4	124	2	13	4
Durham . .	1	7	28	7	13	61	1	6	3
Ely . . .	..	10	26	.	19	27	..	2	1
Exeter . .	2	5	61	23	4	156	7	9	11
Gloucester .	2	14	32	2	3	51	1	1	5
Hereford .	..	20	25	11	12	80	..	11	14
Lichfield & Coventry	1	8	20	49	5	249	4	9	10
Lincoln . .	3	39	48	36	31	347	3	12	8
Llandaff .	1	10	30	9	4	45	2	3	6
London . .	1	13	26	16	16	114	1	3	4
Norwich .	1	47	48	2	22	197	9	7	14
Oxford . .	..	7	18	5	27	36	..	4	
Peterboro' .	..	8	10	1	6	65	..	..	1
Rochester .	1	3	13	1	4	21	..	1	
Salisbury .	1	6	37	23	21	93	2	3	3
Winchester .	..	3	8	16	29	78	..	6	5
Worcester .	5	4	25	8	3	43	3	3	8
York . .	7	40	52	79	26	265	1	2	5
Sodor & Man	8	6	. .	. .	. .	1	..	1	1
Total . .	38	385	702	488	281	2552	43	121	132

The number of vicarages of which the impropriations have not been returned to the Commissioners, is 223.

Where the impropriation or appropriation of the great tithes is shared between owners of different classes, it is included under each class.

There are some few cases of rectories in which the rector has only a portion of the great tithes, the remainder being the property of a spiritual person or body, or of a lay-impropriator; and in Jersey and Guernsey the benefices are merely nominal rectories, the incumbent not being entitled in any case to more than a portion (generally one-third) of the great tithes, the Crown or governor taking the residue; and in some cases the whole goes to the Crown or governor.

BENEFI'CIUM, a Latin word, literally 'a good deed;' also 'a favour,' 'an act of kindness.' This word had several technical significations among the Romans.

When a proconsul, proprætor, or quæstor, returned to Rome from his province, he first gave in his accounts to the treasury; after which he might also give in the names of such persons as had served under him in the province, and by their conduct had deserved well of the state. To do this was expressed by the phrase, 'in beneficiis ad ærarium deferre,'—'to give in to the treasury the names of deserving persons;' and in the case of certain officers and persons, this was to be done within thirty days after the proconsul, &c. had given in his accounts. The object of this practice was apparently to recommend such individuals to public notice and attention, and in many cases it would be a kind of introduction to future honours and emoluments. It does not seem quite certain, if money was given to those thus recommended, in the time of Cicero. (Cicero, *ad Divers.* V. 20. *Pro Archia,* 5.) Beneficium, in another sense, means some honour, promotion, or exemption from certain kinds of service, granted by a Roman governor or commander to certain of his soldiers, hence called Beneficiarii. (Cæsar, *de Bello Civili,* i. 75. iii. 88; Sueton. *Tiber.* 12.) Numerous inscriptions given in Gruter show how common this practice was: in some of them the title is represented by the initial letters B.F., only; Beneficiarius Legati Consularis (li. 4); B.F. Proconsulis (cxxx. 5.) &c. Under the emperors, beneficia appear to have signified any kind of favours, privileges, or emoluments granted to a subject by the sovereign; and Suetonius observes (*Titus,* 8.) that all the Cæsars, in conformity with a regulation of Tiberius, considered that, on their accession to the supreme power, all the grants (beneficia) of their predecessors required confirmation; but Titus by one edict, without solicitation, confirmed all grants of previous emperors. The grants made by the emperors, which were often lands, were entered in a book called the Liber Beneficiorum, which was kept by the chief clerk of benefices, under the care of the Comes Rerum Privatarum of the emperor; or it was kept by a person entitled 'A Commentariis Beneficiorum,' or clerk of the benefices, as we learn from a curious inscription in Gruter (DLXXVIII. 1.) This inscription, which is a monumental inscription, is in memory of M. Ulpius Phædimus, who among other offices held that of clerk of benefices to Trajan: the monument was erected in the reign of Hadrian, A.D. 131, by Valens Phædimianus, probably one of the same family, who styles himself wardrobe-keeper (a veste).

Beneficium, in the civil law, signifies any particular privilege: thus it is said (*Dig.* i. 4. 3.) that the beneficium of the emperor must be interpreted very liberally; and by the Julian law, *de bonis cedendis*, a debtor was said to receive the benefit (beneficium) of not being taken to prison. (Codex vii. Tit. 71.)

Beneficium, among the writers of the middle ages, signified any grant of land from the fiscus, that is, the private possessions of the king or sovereign, or any other person, for life; so called, says Ducange, because it was given out of the mere good will (beneficium) and liberality of the grantor. But it is evident from what we have said, that this kind of grant was so called, after the fashion of the grants of the Roman emperors. A beneficiary grant in the middle ages appears to have been properly a grant for life, that is, a grant to the individual, and accordingly corresponds to *usufructus*, and is opposed to *proprietus*. The name beneficium, as applied to a feudal grant, was afterwards changed for that of feudum; and the terms beneficium and feudum are often used indifferently in writings which treat of feuds. [See Feud.] For further remarks on the term beneficium, see Ducange, *Glossarium, &c.*; and Hotman, *Commentarius Verborum Juris, Opera.* Lugd. fol. 1599.

BENEFIT OF CLERGY. The privilege or exemption thus called had its origin in the regard which was paid by the various sovereigns of Europe to the early Christian Church, and in the endeavours of the popes to withdraw the clergy altogether from secular jurisdiction. In England, these attempts, being vigorously resisted by our earlier kings after the Conquest, only succeeded partially and in two particular instances, namely, in procuring, 1. the exemption of places consecrated to religious purposes from arrests for crimes, which was the origin of sanctuaries [see Sanctuary]; and 2. the exemption of clergymen in certain cases from criminal punishment by secular judges. From the latter exemption came the benefit of clergy, which arose when a person indicted for certain offences pleaded that he was a clerk or clergyman and claimed his *privilegium clericale.* Upon this plea and claim the ordinary appeared and demanded him; a jury was then summoned to inquire into the truth of the charge, and according to their verdict the accused was delivered to the ordinary either as *acquit* or *convict*, to undergo canonical purgation, and then to be discharged or punished according to the result of the purgation. This privilege, however, never extended to high treason nor to offences not capital, and wherein the punishment would not affect the life or limb of the offender (*quæ non tangunt vitam et membrum*). It is singular that previously to the statute 3 and 4 Will. III., which expressly includes them, this privilege of clergy never extended by the English law to women, although it is clear that, by the canon law, nuns were exempted from temporal jurisdiction.

In early periods of the history of this privilege in England, the benefit of clergy was not allowed unless the prisoner appeared in his clerical habit and tonsure to claim it: but in process of time, as the original object of the privilege was gradually lost sight of, this ceremony was considered unnecessary, and the only proof required of the offender's clergy was his showing to the satisfaction of the court that he could read, a rare accomplishment, except among the clergy, previously to the 15th century. The consequence was, that at length all persons who could read, whether clergymen or lay clerks, as they were called in some antient statutes, were admitted to the benefit of clergy in all prosecutions for offences to which the privilege extended. The mode in which this test of reading was applied is thus described by Sir Thomas Smith in his 'Commonwealth of England,' written in 1565. 'The bishop,' says he, 'must send one with authority under his seal to be a judge in that matter at every gaol delivery. If the condemned man demandeth to be admitted to his book, the judge commonly giveth him a Psalter, and turneth to what place he will. The prisoner readeth so well as he can (God knoweth sometime very slenderly), then he (the judge) asketh of the bishop's commissary, *Legit ut clericus?* The commissary must say *legit* or *non legit*, for these be words formal, and our men of law be very precise in their words formal. If he say *legit*, the judge proceedeth no further to sentence of death; if he say *non*, the judge forthwith proceedeth to sentence.'

The clergy, however, do not appear to have universally admitted that the mere fact of a prisoner's ability to read was to be taken as a conclusive proof of his clerical character. A curious case is recorded in the *Year Book*, 34 Hen. VI. 49 (1455), which greatly puzzled the judges. A man indicted of felony claimed the benefit of clergy; upon which the archdeacon of Westminster Abbey was sent for, who showed him a book, in which the felon read well and fluently. Upon hearing this, the court ordered him to be delivered to the archdeacon on behalf of the ordinary; but the archdeacon refused to take him, alleging that the prisoner was not a clerk. This raised a serious difficulty; and the question was one of particular importance to the prisoner, as the judges deliberated whether he must not of necessity be hanged. He was, however, remanded to prison, and the subject was much discussed by the judges for several terms; but, luckily for the culprit, the conscientious archdeacon being removed, his successor heard the prisoner read, and consented to receive him; whereupon he was delivered to the ordinary, the judges saying 'that *in favorem vitæ et libertatis ecclesiæ*, even where a man had once failed to read, and had received sentence of death, they would allow him his benefit of clergy, under the gallows, if he could then read, and was received by the ordinary.' Another case is recorded in the 21st year of Edw. IV. (1481), in which a felon read well and audibly in the presence of the whole court; but the ordinary declared '*non legit ut clericus* for divers considerations.' Upon which judgment was given that he should be hanged; 'And so,' says the reporter, 'he was, *ut audivi*.' (*Year Book*, 21 Edw. IV. 21.) But though a felon might claim the benefit of clergy to the last moment of his life, it was an indictable offence to teach him to read for the purpose of saving him. Thus in the 7th Richard II. (1383), the vicar of Round Church in Canterbury was arraigned and tried, 'for that by the license of the jailer there, he had instructed in reading one William Gore, an approver, who at the time of his apprehension was unlearned;' (*ineruditus in lecturâ.*) (Dyer's *Reports*, p. 206.) It may readily be conceived that questions between the temporal courts and the ordinary would arise as the art of reading became more generally diffused; and it was probably on this account that an express provision was made by the legislature in order in some degree to obviate the occurrence of such difficulties. The statute 4 Henry VII. c. 13 (1488), revived the distinction between actual clergymen and such persons as had accidentally acquired a competent skill in reading, by providing that no person once admitted to the benefit of clergy should a second time be allowed the same privilege, unless he produced his orders; and to mark those who had once claimed the privilege, the statute enacted that all persons, not in orders, to whom it was so allowed, should be marked upon the 'brawn of the left thumb' in the court, before the judge, before such person was delivered to the ordinary. After the offender was thus burned in the hand, he was formerly delivered to the ordinary to be dealt with according to the ecclesiastical canons, and to make purgation by undergoing the farce of a canonical trial. This second trial took place before the bishop or his deputy; there was a jury of twelve persons, who gave their verdict on oath; witnesses were examined on oath; the prisoner answered on oath; and twelve compurgators swore that they believed him. On this occasion, though the prisoner had been convicted at common law by the clearest evidence, or had even confessed his guilt, he was almost invariably acquitted. The whole proceeding before the ordinary is characterised by Chief Justice Hobart, at the beginning of the seventeenth century, 'as turning the solemn trial of truth by oath into a ceremonious and formal lye.' (Hobart's *Reports*, p. 291.) To remove this discreditable abuse of the forms of justice, the statute 18 Eliz. c. 7, enacted that in all cases after an offender had been allowed his clergy, he should not be delivered to the ordinary, but be at once discharged by the court, with a provision that he might be detained in prison for any time, not exceeding a year, at the discretion of the judge before whom he was tried.

By various statutes passed in the course of the last century, the court before which an offender was tried and admitted to his clergy were empowered to commute the burning in the hand for transportation, imprisonment, or whipping; and subsequently to the passing of these statutes it is believed that no instance has occurred of a convict being burned in the hand.

The practice of calling upon a convicted person to read in order to prove to the court his title to the benefit of clergy continued until a comparatively late period. A case is mentioned in Kelynge's *Reports*, p. 51, which occurred in 1666, where the bishop's commissary had deceived the court by reporting, contrary to the fact, that a prisoner could read; upon which Chief Justice Kelynge rebuked him severely, telling him 'that he had unpreached more that day than he could preach up again in many days,' and fined him five marks. At length the statute of the 5th of Anne, c. 6, enacted that the benefit of clergy should be granted to all those who are entitled to it without requiring them to read; and thus the 'idle ceremony of reading,' as Mr. Justice Foster justly terms it, was finally abolished.

The absurd and perplexing distinctions which the continuance of this antiquated and worn-out clerical privilege had introduced, having become extremely detrimental to the due administration of justice, it was enacted by one of the recent statutes for the consolidation and improvement of the criminal law, commonly called Peel's Acts (namely, 7 and 8 Geo. IV. c. 28, s. 6), 'that benefit of clergy with respect to persons convicted of felony shall be abolished.' Since the passing of this statute, the subject is of no practical importance whatever; but those who may be inclined to pursue it as a matter of historical curiosity may find the following references useful:—Blackstone's *Commentaries*, vol. iv. chap. 28; Hale's *Pleas of the Crown*, part ii. c. 45; Barrington's *Observations on Antient Statutes*; Hobart's *Reports*, p. 288.

BENEFIT SOCIETIES. [See FRIENDLY SOCIETIES.]

BENEVE'NTO, a town belonging to the Papal State, though geographically enclosed within the province of Principato Ultra, in the kingdom of Naples. It is situated on a hill at the junction of two valleys, in which the rivers Calore and Sabato flow, and between Mount Taburnus to the west, which separates its territory from the plains of Campania, and the central chain of Apennines to the east, which divides it from the plains of Puglia. The Calore, one or two miles above Benevento, receives the Tamaro which comes from the north from Mount Matese. After winding round the northern side of the town, the Calore receives just below it the Sabato which comes from the south, after which the united streams flow to the Volturno above Cajazzo. Benevento is 30 miles N.E. of Naples, in 41° 7′ N. lat. and 14° 43′ E. long. This town belonged in antient times to the Samnites, and was then called Maleventum, the etymology of which name has been fancifully but not satisfactorily explained by some writers.

The Caudine forks, in which the Roman army on its way from Calatia, the modern Cajazzo, to Maleventum, was obliged to surrender to the Samnites, are generally supposed to have been between Arpaja and Montesarchio, on the direct road from Naples to Benevento, although observing travellers had remarked that the localities did not by any means correspond to the description of that celebrated defile given by Livy. (See Eustace's *Italy*, vol. iii. ch. 3.) Cluverius, however, pointed out a more probable spot, in a narrow defile watered by the river Isclerus, which flows into the Volturno near Ducenta. Late travellers who have examined this defile have confirmed the assertion of Cluverius. The Isclerus, now called the Faienza, a small mountain stream coming from the south-east above Cervinara, crosses the high road between Arpaja and Montesarchio, and then enters a long and narrow defile between Mount Taburnus and a branch of the Tifata ridge, and after passing by Mojano and Santa Agata dei Goti, enters the plain of the Volturno, into which it flows nearly opposite Calatia or Cajazzo. This was the most direct way for the Romans from the banks of the Volturno to Maleventum. This pass has two narrow openings, one near Mojano, and the other near Santa Agata, with a small plain between, formed by the receding sides of Mount Taburnus, while the valley of Arpaja, through which the high road passes, has only one narrow defile, and has three openings instead of two, and moreover has no stream running through it. (See a Memoir on the subject by J. P. Gandy, in Keppel Craven's *Tour*, with a small map of the localities.) The Romans, having afterwards defeated the Samnites, and taken Maleventum, sent a colony there, and changed its name to Beneventum. The Appian road passed through Beneventum. [See ANTONINUS, ITINERARY OF.] The people of Beneventum remained firmly attached to Rome during the second Punic war.

After the fall of the western empire, Benevento was subject to the general vicissitudes of barbarian invasions like the rest of Italy, until it was taken in the sixth century by the Longobards, who established here a dukedom, which included all their conquests in Samnium, Campania, and Apulia. The dukes of Benevento, owing to their vast possessions and their remoteness from the Longobard capital, Pavia, were almost independent. When Charlemagne destroyed the kingdom of the Longobards, the duchy of Benevento maintained itself as an independent state, and its dukes assumed the title of princes. They were often at war with the Greeks, the Franks, and the Saracens, and also with their neighbours of Naples. The principality was afterwards split into three, Capua and Salerno having become independent of Benevento. The Normans took Benevento and gave it up to the pope, who bestowed on the Norman chief the investiture of Apulia and Calabria. The popes, however, allowed the old princes of Benevento to remain as feudatories of the Roman See until 1077, when Landulphus, the last prince of Benevento, died, leaving no heirs. From that time Benevento has remained under the direct dominion of the popes, and although it has been repeatedly seized by various kings of Naples, it has always been restored on making peace. In 1806, Napoleon, having conquered Naples, took Benevento also, and gave it to Talleyrand with the title of prince, but it was restored to the pope in 1815. Benevento is governed by a cardinal sent from Rome, with the title of legate. Near Benevento the famous battle took place between Manfred and Charles of Anjou in 1265, in which Manfred lost his crown and his life. He was buried on the banks of the Calore, under a heap of stones thrown upon him by Charles's soldiers; but his remains were afterwards disinterred by order of the bishop of Cosenza, and carried to the banks of the river Verde on the borders of Abruzzo. (See Dante, *Purgatorio*, canto iii.) Charles's soldiers after the battle pillaged Benevento, which had offered no resistance, murdered most of the people, not sparing old men, children, or priests, violated the women, and partly destroyed the town. (Borgia, *Memorie Istoriche di Benevento.*)

The present territory of Benevento, which belongs to the pope, is limited within narrow boundaries; it extends some seven or eight miles along each of the two valleys of the Sabato and Calore, and contains fourteen villages. The population of the town is reckoned at 16,000, and that of the territory at about 6000 more. The surface of the territory is stated at about 7000 rubbia, a Roman land measure equal to about four English acres. (Calindri, *Saggio Statistico dello Stato Pontificio.*) The country is hilly, but fertile in corn, fruit, and pasture, and it abounds with game. The river Sabato supplies it with fish. The town is surrounded by walls, and has an old castle at its eastern extremity; the streets are narrow and steep; the climate is subject to fogs in winter and oppressive heat in summer.

[From British Museum. Actual size. Copper; weight 100 grains.]

The cathedral is an old and vast building, but disproportionately low; its vault is supported by a number of fluted marble columns, which are believed to belong to the Roman period. The middle gate of the church is of sculptured bronze, of good workmanship, and representing scriptural subjects. A bas relief of a boar adorned for sacrifice, now fixed on the outside wall of the church, is supposed to be of very remote antiquity. Adjoining the cathedral is the archiepiscopal palace. In the square before it stands a small granite obelisk, which, according to Champollion (*Précis*, p. 95), belongs to the reign of Domitian. There are several other churches and convents, a seminary, and a palazzo pubblico or town-house, which is a fine structure. The old monastery of Santa Sofia, now suppressed, was rich in archives, chronicles, and other historical records, which have been lost or dispersed in the vicissitudes of the country. The church adjoining the monastery is an octagon, and is adorned with eight granite columns. In the court of the cloisters is a well, the mouth of which is hewn through a very large capital of the Ionic order. There are also some remains of an amphitheatre and of a Roman bridge, and many inscriptions, rilievi, and other fragments, of which a full account is given in De Vita's *Thesaurus Antiquitatum Beneventanarum*, 2 vols, fol. Rom. 1754-64. But the most interesting monument of antiquity is Trajan's triumphal arch, which forms one of the city gates on the road to Puglia, and is called the Porta Aurea. It is a single arch of Parian marble, and entire with the exception of part of the cornice; both its sides are adorned with four Corinthian pillars raised on high pedestals. The frieze and pannels, as well as the interior of the arch, are covered with rich sculpture, representing Trajan's achievements and his apotheosis. The figures are in alto rilievo, and exquisitely executed; but unfortunately most of them are damaged, and there is hardly one of them entire. De Vita has given an engraving and a description of this arch, which is one of the finest in existence. Benevento is 125 miles E.S.E. of Rome.

BENEVOLENCE, a species of forced loan, or gratuity, and one of the various arbitrary modes of obtaining supplies of money, which, in violation of Magna Charta, were formerly resorted to by the kings of England. The name implies a free contribution, with or without the condition of repayment; but so early as the reign of Edward IV. the practice had grown into an intolerable grievance. That king's lavish liberality and extravagance induced him to levy benevolences very frequently; and one of the wisest and most popular acts of his successor, Richard III., was to procure the passing of a statute (cap. 2) in the only parliament assembled during his reign, by which benevolences were declared to be illegal; but this statute is so expressed as not clearly to forbid the solicitation of voluntary gifts, and Richard himself afterwards violated its provisions. Henry VII. exacted benevolences, which were enforced in a very oppressive way. Archbishop Morton, who solicited merchants and others to contribute, employed a piece of logic which obtained the name of 'Morton's fork.' He told those who lived handsomely, that their opulence was manifested by their expenditure; and those who lived economically, that their frugality must have made them rich: so that no class could evade him. Cardinal Wolsey, among some other daring projects to raise money for Henry VIII., proposed a benevolence, which the citizens of London objected to, alleging the statute of Richard III.; but the answer was, that the act of a usurper could not oblige a lawful sovereign. Elizabeth also 'sent out her privy seals,' for so the circulars demanding a benevolence were termed; but though individuals were committed to prison for refusing to contribute, she repaid the sums exacted. Lord Coke, in the reign of James I., is said to have at first declared that the king could not solicit a benevolence, and then to have retracted his opinion, and pronounced upon its legality.

The subject underwent a searching investigation during the reign of Charles I., as connected with the limitation of the king's prerogative. That king had appointed commissioners for the collection of a general loan from every individual, and they had private instructions to require not less than a certain proportion of each man's property in land or goods, and had extraordinary powers given them. The name of loan given to this tax was a fiction which the most ignorant could not but detect. Many of the common people were impressed to serve in the navy for refusing to pay; and a number of the gentry were imprisoned. The detention of five knights, who sued the Court of King's Bench for their writ of Habeas Corpus, gave rise to a most important question respecting the freedom of English subjects from arbitrary arrest, and out of the discussion which then arose, and the contests respecting the levying of ship-money, &c., came the distinct assertion, and ultimate establishment of the great principle of English liberty. The 13 Car. II. stat. 1, cap. 4, provides for a voluntary present to his majesty, with a proviso, however, that no aids of that nature can be but by authority of parliament. The Bill of Rights, in 1688, repeats what Magna Charta declared in 1215, that levying of money for, or to the use of the crown, by pretence of prerogative, without grant of parliament, for longer time, or in any other manner than the same is or shall be granted, is illegal.

(Hallam's *Constitutional History of England*, and Turner's *History of England*.)

BENGAL, a large province of Hindustan, which derives much importance from the circumstance of its being the seat of the supreme government in British India.

Boundaries.—Bengal is bounded on the south by the Bay of Bengal and the district of Midnapore in Orissa, on the east by the Burmese empire, on the north by Nepaul and Bootan, and on the west by the province of Bahar. It is situated between 21° and 27° N. lat. and 86° and 93° E. long. The length of the province from east to west may be estimated at 350 English miles, and its average breadth from north to south at 300 miles: the area is estimated by Major Rennell at 97,244 square miles, or upwards of 8000 square miles more than Great Britain. It appears from the various surveys that have been made of different parts of the province, that its surface is divided in nearly the following proportions, viz.:—

		Parts.
Rivers and lakes		3
Sites of towns and villages, roads and tanks .		1
Land deemed irreclaimable and barren . .		4
Land in cultivation, or capable of improvement, viz.:—		
Free lands	3	
Lands in tillage, liable to payment of rent to the Company's government . . .	9	
Waste lands	4	
	—	16
		24

From its geographical position, Bengal is advantageously circumstanced in regard to security from foreign invasion. The sea-coast, which forms nearly the whole southern boundary, is guarded by shallows and impenetrable woods. It has only one considerable port, and that is difficult of access. The eastern boundary is protected by a belt, the breadth of which varies from ten to twenty miles, and which is covered throughout with the rankest and most luxuriant vegetation, forming an impassable barrier. On the north rises a chain of lofty mountains, containing a scanty and half-civilized population, who obtain a bare subsistence from an ungrateful soil. On the west alone Bengal is vulnerable, but even there the natural barrier is strong, while its population and resources are such as might bid defiance to any hostile force that could be brought against it.

Character of the Soil.—The general character of Bengal is that of a flat champaign country; there are no hills of considerable elevation in the province. The districts in which some elevations occur, are Chittagong and Tiperah on the east, Silhet on the north-east, and Birbhoom on the west, but even in these districts the hills occupy only a small part of the surface.

The soil most general throughout Bengal is a light loam, in which sand greatly predominates. Except in tracts which are annually inundated, the stratum of productive earth which covers the barren sand is seldom more than a few inches in depth. The annual inundations here spoken of are occasioned by the swelling of the rivers in the rainy season; as the water afterwards drains away it leaves a deposit of decayed vegetable matter, which renews the productiveness of the soil.

Rivers.—Bengal is intersected in every direction by navigable streams, for the most part affluents of the Ganges, by which river the province is watered from its north-western boundary at Purneah to the sea. The Brahmapootra enters the province of Bengal at its north-eastern extremity, whence it flows with a westerly course through the district of Rangamatty, then takes a southerly direction, winding occasionally towards the east, and falls into the Bay of Bengal at the spot where the Ganges has its principal embouchure. [See Ganges and Brahmapootra.] The other principal rivers are the Cosi, Conki, Dummoodah, Jhinayi, Korotoya, Manas, and Teesta.

The Cosi rises in the Nepaul Hills near Catmandoo, the capital of Nepaul, and enters Bengal twenty miles north of

Nauthpore in Purneah; it then flows nearly due south, and joins the Ganges at the south-western corner of Purneah, where it forms the boundary between Bengal and Bahar. The Conki is a considerable mountain-stream, which has its source in Tibet. It enters Bengal in Purneah district, to the north of Allygunge, eastward of the Cosi, and between it and the Teesta; it then flows with a winding course towards the south, and after being joined by the Mahananda, which receives its name, it joins the Ganges at Nabobgunge about seventeen miles above Bauleah. The Dummoodah rises among the hills in the district of Ramghur in Bahar. This river receives many tributaries in its eastward course through Ramghur; it enters Bengal at the western extremity of Burdwan, passes the town of Burdwan, and then, turning abruptly to the south, joins the Hoogly a few miles below Futtah, and not far from the æstuary of the Hoogly. Above the influence of the tides, the Dummoodah is shallow, and except in the rainy season not navigable. Where the river passes through the hilly country two or three hours' rain fills it, but it runs dry again in a short time, so that it is only when the rains are regular that boats can pass. When the river is falling the boats are hauled up to wait the next rise, which often comes so suddenly as to overwhelm everything in its way. The influence of the tide reaches only to Omptha, about twenty-five miles in a direct line from the junction of the Dummoodah with the Hoogly. Above Burdwan there is more water, and the river is used for the conveyance of goods. The Jhinayi river is a branch of the Brahmapootra, which it quits at Shazadpore, about ten miles below Dewangunge. The Jhinayi flows first to the south and then to the west, and discharges itself into the lakes or jeels of Nattore. The Korotoya, which rises in Tibet, enters the province of Bengal at its northern boundary, dividing from each other the districts of Rungpore and Dinajepore: after a short course to the south-west it falls into the Teesta. In the rainy season the Korotoya is navigable for boats of small burthen, but the principal commercial use that is made of this river is to float considerable quantities of timber down its current. The Manas is a small river, which forms the boundary of the British dominions at the north-eastern extremity of Bengal, which province it separates from Bijnee, a principality paying tribute to the ruler of Bootan. The Manas flows to the south-west, and after thus forming a territorial boundary for about seventeen miles, falls into the Brahmaputra at Jughigopa in 26° 12′ N. lat., and 90° 35′ E. long. The Teesta is said to rise in Thibet, and to form there, through part of its course, the boundary of the Chinese empire. Finding a passage through the Himalaya range it falls precipitately down the face of a mountain, about fifty miles north of Jelpigory, a small town in Rungpore district, sixty-five miles north-north-west from the town of Rungpore. The Teesta separates the British territory from Bootan as far south as Gopaulgunge, a village on the east bank of the river in 26° 38′ N. lat., and 88° 49′ E. long. South of this village the territory on both sides of the Teesta belongs to the British, and the stream thence continues within the province of Bengal until it joins the great eastern trunk of the Ganges near Nabobgunge in 24° 35′ N. lat., and 88° 27′ E. long. The Teesta is navigable at all seasons for boats of small burthen to within ten miles of the northern frontier of the British dominions. It is much swollen in the rainy season, and advantage is taken of this circumstance to transmit goods by it in vessels of considerable size.

Besides the rivers here mentioned Bengal contains many water-courses communicating with navigable rivers. During the rains these tributaries also are navigable by boats, which convey the produce of the soil from the doors of the ryots for shipment in larger vessels on the more considerable streams. It is said that there is hardly any spot in the province which is more than twenty miles from a river navigable in the driest seasons.

The rivers of Bengal are constantly changing their courses, an effect which is attributed by Major Rennell to the loose materials of which the soil is composed, and which easily yields to the friction of the stream. The manner in which this effect is produced is thus described by the Major: 'I can easily suppose, that if the Ganges was turned into a straight canal, cut through the ground it now traverses in the most winding parts of its course, its straightness would be of short duration. Some yielding part of the bank, or that which happened to be the most strongly acted on, would first be corroded or dissolved: thus a bay or cavity would be formed in the side of the bank. This begets an inflection of the current, which falling obliquely on the side of the bay, corrodes it incessantly. When the current has passed the innermost part of the bay, it receives a new direction, and is thrown obliquely towards the opposite side of the canal, depositing in its way the matter excavated from the bay, and which begins to form a shallow or bank contiguous to the border of the canal. Here then is the origin of such windings as owe their existence to the nature of the soil. The bay, so corroded, in time becomes large enough to give a new direction to the body of the canal, and the matter excavated from the bay is so disposed as to assist in throwing the current against the opposite bank, where a process similar to that I have been describing will be begun.'

There are many instances of a total change of course in some of the Bengal rivers. It is stated by Major Rennell that 'the Cosi river (equal to the Rhine) once ran by Purneah (town), and joined the Ganges opposite Rajimal. Its junction is now forty-five miles higher up. Gour, the antient capital of Bengal, stood on the old bank of the Ganges, although its ruins are four or five miles from the present bank. During eleven years of my residence in Bengal, the outlet or head of the Gellinghy river was gradually removed three quarters of a mile lower down; and by two surveys of a part of the adjacent bank of the Ganges, taken about the distance of nine years from each other, it appeared that the breadth of an English mile and a half had been taken away. This is, however, the most rapid change that I have noticed, a mile in ten or twelve years being the usual rate of encroachment in places where the current strikes with the greatest force—namely, where two adjoining reaches approach nearest to a right angle. In such situations it not unfrequently excavates gulfs of considerable length within the bank. These gulfs are in the direction of the strongest parts of the stream, and are in fact the *young shoots* (if I may so express myself) which in time strike out and become branches of the river, for we generally find them at those turnings that have the smallest angles.'

Lakes.—There are a great number of extensive jeels (shallow lakes) in Bengal. The greater part of these contain little or no water during the dry season, but are so swollen by the rains as to offer facilities for the conveyance of produce in boats of large dimensions. Some of these jeels are navigable throughout the year. It is supposed that these stagnant sheets of water were originally parts of the channels of great rivers, the courses of which have been changed by the means just described.

The instability of the soil which admits of these changes, is one reason why the buildings throughout the province are usually of a frail description. The habitations of the poorer classes are made of such slight materials, that few of them will last beyond the second or third year, while the dwellings of the wealthy are of a very homely description. Few persons care to expend much money in the erection of a building, which by an ordinary casualty may be damaged or destroyed in a few seasons.

Climate.—There is considerable regularity in the changes of the seasons in Bengal. The four months preceding the setting in of the periodical rains, which generally commence early in June, are dry, and the heat during this time progressively increases, until it becomes scarcely supportable even by the natives. During April, the heat is occasionally tempered by thunder-storms, accompanied by rain and wind from the north-west. In June and July the rain is violent, and with little or no intermission, so that it is rare to experience an interval of fair weather which lasts for more than one or two days together. The quantity of rain that falls at this season has sometimes been equal to four or five inches of water in twenty-four hours: this however is far beyond the average, since the annual fall of rain varies from seventy to eighty inches, but very rarely exceeds the larger quantity. From July to the beginning of September the weather is less decidedly rainy, the dry days recur more frequently and occupy longer intervals, the rain too, when it falls, is less violent. In September the dry season again prevails, and the heat is intense. This is considered the most unhealthy part of the year, especially to Europeans, an effect which may in part be attributed to the profuse exhalations caused by the rays of the sun acting upon the land when saturated with moisture.

In the dry and colder part of the year the dews are so heavy, as probably to compensate for the daily exhausting powers of the sun, and to supply the moisture necessary for carrying forward vegetation.

The rivers begin to swell near their sources before the rains set in, owing to the melting of the snows on the mountains of Tibet. At first the rising proceeds at the rate of about one inch daily; at the end of about two weeks, the rate of increase is accelerated, and before the setting in of the rains, amounts to nearly three inches in the day. During the rains the daily rise is as much as five inches. At this time all the lower parts of Bengal contiguous to the courses of the Ganges and Brahmapootra, are covered with water by the rains before the rivers are sufficiently swollen to overflow their banks. But after this has occurred, the country presents one uniform surface of water for an extent of more than 100 miles. In order to prevent the mischief that might ensue from the rushing of so great a body of water from the overcharged rivers, dikes are constructed in various situations, which are kept up at a great expense. In some situations the banks of the Ganges are artificially raised on each side to confine the water, which thus flows during the rainy season, at a higher level than the adjacent country. The progressive increase of this inundation is arrested before the middle of August, by the ceasing of the rain in the mountains, although much still continues to fall in the plains. After the beginning of October the water rapidly subsides, its disappearance being hastened by the prodigious evaporation.

The boats used for passing on the rivers are of considerable size, and in shape like pleasure-barges; they draw four to five feet water, and are called Budgerows. In the dry season their course down the stream does not exceed forty miles in twelve hours; at other times from fifty to seventy miles are passed in that time. The current is strongest during August and September, when the water is subsiding. In ascending the streams, the boats are tracked by oxen, and rarely advance more than twenty miles a day direct distance, although, from the winding of the rivers, the distance passed through may be double that number of miles. The periodical swellings of the rivers have sometimes been attended by disastrous consequences. In 1763, the descending stream, then near its greatest elevation, being met by a violent storm of wind, the water of the Brahmapootra near Luckipore, where that river takes the name of the Megna, suddenly rose six feet, and swept away the inhabitants of the whole district with their cattle and houses. At other times equally fatal effects have been caused by the absence of the periodical rains. This misfortune happened in 1770, and produced a famine. The nabob, and those of the inhabitants who possessed stores of grain, distributed it gratis to the poor, but that resource was speedily exhausted, and the starving natives then thronged to Calcutta. The magazines there being unprovided, these miserable people died in the streets in such numbers, that a large party of labourers was employed daily by the government to cast the bodies into the river.

Natural productions.—The produce of the soil in this province includes almost every kind of grain and pulse cultivated in Europe, with other objects proper to the climate of the country. Rice is the most generally and extensively grown of all these objects, and is found in almost every part of the province in an endless variety of species. In the management of the land for this, the most important object of cultivation, embankments are formed for retaining the water on the plains, and for preserving it in reservoirs on the higher grounds, whence it is conveyed as occasion requires, for the purpose of irrigating the lands below. Many tanks have been built for the same purpose. Some of these owe their construction to pious motives, others to a love of ostentation and the desire of fame. These purposes were fulfilled by the original formation of these works, but the same motives do not operate for their preservation, and no one being individually interested in keeping them in repair, they are suffered to become first useless from want of care, and then noxious from the quantity of decaying plants constantly found in them. Wheat and barley are sown at the commencement of the colder season, and are reaped before the setting in of the rains. The winter season is also chosen for the raising of great varieties of peas and beans. Millet is another article of importance in the rural economy of Bengal, and in the western districts maize is very generally cultivated.

Linseed, mustard-seed, palma christi, and sesamum, are grown for the quantity of oil which they yield, and which is consumed in vast quantities throughout the province. Oil is also made from the cocoa-nut. The cold season is chosen for cultivating linseed and mustard; the seeds of sesamum ripen after the rains, and cocoa-nuts are gathered at all seasons.

Sugar, cotton, indigo, and tobacco, are among the most important productions of the country. Mulberry-trees, the leaves of which are necessary for the sustenance of silkworms, and poppies for the opium which they yield, are also objects of extensive cultivation.

The implements of husbandry in use throughout the province are of the rudest description. Ploughs cost less than half-a-crown of our money, and the operation of ploughing, owing to the thinness of the soil, is a mere scratching of the land. It is considered a large harvest which yields in the proportion of forty bushels of rice to the English acre, which is a return of about fifteen for one of the seed.

It is not uncommon to reap two harvests in the year from the same field, one of wheat or barley, and the other of pulse, millet, or seeds for oil.

Orchards of mango-trees are seen in every part of Bengal; date-trees are equally common; and in the central parts of the province there are plantations of areca palms. Pine-apples, citrons, lemons, oranges, pomegranates, grapes, almonds, tamarinds, plantains, ginger, carrots, potatoes, onions, and garlic, are plentiful in most parts. Apples and pears are found only in the northern districts. Bamboos, which, from the quickness and luxuriance of their growth, are so useful to the peasantry of India for the construction of their dwellings and many other domestic uses, are every where seen. Flowers are abundant, beautiful, and in great variety, but, except roses and a few others, they are scentless.

The cattle employed in husbandry-labour are of small size, and their value is seldom greater than five or six rupees (ten or twelve shillings) per head. The religious restrictions of the Hindus prevent all care for the improvement of cattle. Buffaloes are kept for the sake of their milk; the expense attending them being less than that of keeping cows. Sheep are far from being numerous; they are of very diminutive size, but when well fed their flesh is excellent. Their wool is used for making coarse blankets for the native population. The horses of Bengal are of a very inferior breed, ill-shaped, and but little adapted for labour of any kind. Elephants and camels, which are much used among the wealthier inhabitants, are kept in good condition, and are very serviceable on journeys, and for the conveyance of goods.

The streets of every town in Bengal are infested by dogs, many of which are without owners. The woods or jungles teem with animal life. The jackall is heard howling at the close of every day. Innumerable apes and monkeys inhabit the woods, and frequently visit the villages, where they are fed by the inhabitants, who consider them sacred animals. The sanctity of the Brahminy bull secures for him everywhere the kindest treatment, and he rambles over the country not only without molestation, but receiving caresses from all the people by whom he may be met. Red-deer, fallow-deer, elks, antelopes, and goats are numerous throughout the province; and in some parts, particularly the Delta of the Ganges, lions and tigers are very numerous, and every year carry off many of the natives.

A large species of heron (*Ardea Argala*) frequents the towns in considerable numbers, where they perform the office of scavengers, and are so useful that no disturbance is ever offered to them. The stately air with which they stalk about has occasioned these birds to receive the name of adjutants. They feed on reptiles, and on the various kinds of garbage so liberally scattered in the streets of every Indian town, and which in a climate like that of Bengal, surcharged with heat and moisture, would, if not removed, soon produce a pestilence.

Fish is exceedingly abundant, and within the reach of almost every class of inhabitants, particularly at certain seasons, when the poorer among the natives are said to contract diseases from eating too plenteously of this description of food. The fish most highly esteemed is the mango fish, to which that name has been given from the circumstance of its making its appearance during the season when that fruit is most abundant. The mango-fish is a sea-fish, which ascends the rivers at that time, but is never found beyond the influence of the tides, nor is it ever seen in any rivers except those of Bengal and Ava. The bicktee and sable-fish are much esteemed by Europeans. Mullet are very numerous in the rivers within a certain distance of the sea. They are taken by shooting them with small shot, as they swim against the stream close to the surface. A small, but excellent kind of oysters is found on the coast of Chittagong. Turtle are procured from the island of Cheduba in the bay of Bengal. Almost every river in the province is infested by alligators, and in all the large rivers porpoises ascend to a distance of 200 miles from the sea.

Minerals.—The province of Bengal is poor in mineral productions. The hills in Silhet produce iron ore. Iron is made at Punduah by a curious process, which at once smelts the ore and renders its malleable. Granular iron ore of the fineness of sand is washed clean and mixed with water into a soft mass or magma; bits of reed, sticks, or leaves are then dipped in it, and take up as much as they will hold, and these when pretty dry are thrown into the top of a small clay cupola-furnace and melted. It appears from this detail, that the ore must possess a great degree of purity. The ore might be collected in large quantities, and as limestone of good quality and coal are found in the same range of hills, the smelting might be easily effected. Some petroleum springs exist in the same district. [See SILHET.]

Coal is abundant also in the Jungle Mahals whence it can be easily conveyed to Calcutta in the rainy season, down the Dummoodah river. Coal and iron ore are both of them procured in Birbhoom, and iron-works have long been carried on there by the natives. Extensive forests occur in the neighbourhood of these works, and the smelting is performed by means of charcoal.

Progress of English political power in Bengal.—The commencement of the power of the English in Bengal dates from the year 1652, when, through the influence of a medical gentleman who had been sent to the court of the Mogul, where he had successfully applied his professional skill, a license was given permitting the English East India Company to trade to an unlimited extent free from all payment of customs' duties; this privilege was granted upon payment of the merely nominal sum of 3000 rupees. The first settlement made by our countrymen in the province appears to have been at the town of Hoogly, twenty-three miles higher up the river than the city of Calcutta. The station here formed was considered subordinate to the presidency of Surat.

It was not until 1698 that the English factory was removed from Hoogly to Calcutta, and that Fort William was built. This station was obtained by purchase as a Zamindary. In 1707 the subordination to Madras ceased, and Calcutta was made a separate presidency. In 1717 the Company obtained a license from the Mogul, permitting the purchase of lands contiguous to the factory, and confirming the exemption of their trade from duties. In 1756 the English authorities in Calcutta having been induced by the dread of hostile proceedings on the part of the French, then at war with England, to strengthen their fortifications, the Soubahdar of Bengal, Suraja Dowla, who had never been friendly to the English, made this a pretext for attacking the city. The outposts were attacked on the 18th of June, 1756, and were badly defended. The fort held out only two days, during which time it was deserted by the women and children, as well as by the principal people of the factory, and at the expiration of the time mentioned the place was carried by storm. On the first day of the following year Calcutta was retaken by the English; on the 23d of June following the nabob was defeated at Plassey by Lord Clive; and early in July was assassinated by order of the son of his successor.

From this time may be dated the beginning of the absolute government of the English in Bengal, although the Dewannee, or authority to collect the revenue, was not formally given by the Mogul Shah Allum until the 12th of August, 1765. Previously to this cession the possessions of the East India Company in Bengal were the factories of Cossimbazar, Dacca, and Calcutta, with a district in the vicinity of the last-named city denominated the 24 Pergunnahs, situated principally to the south of Calcutta, on the east side of the Hoogly river. The grant of this district was made in the first instance (1759) as the personal Jaghire, or leasehold estate, of Lord Clive, by whom it was enjoyed until 1775, when it came into the full possession of the East India Company.

The grant of the Dewannee already mentioned was contrary to the wishes of Nujeem ad Dowla, then soubahdar or nabob of Bengal. Such, however, was the power of the English that he was obliged to submit, and made over the management of the province, with all its advantages, to the Company, upon the assignment of an annual pension equal to nearly half a million sterling. At the same time an annual payment of twenty-six lacs of rupees, at that time equal to about 300,000*l.*, was promised on the part of the Company to the Mogul Shah Allum, but this annuity was considered to be forfeited, when in 1771 that prince placed himself voluntarily in the hands of the Maharattas. The payment for which the nabob had stipulated was 'Rupees 17,78,854 for his house, servants, and other expenses indispensably necessary, and rupees 24,07,277 for the support of such sepahis, peons, and berkundasses as might be thought proper for his answarry only.' The sums were reduced by a treaty with his successor Mobarek-al-Dowlah in 1770 to rupees 15,81,991 in the former, and rupees 16,00,000 in the latter account. The whole stipend of this family was afterwards fixed at rupees 16,00,000, at which rate it has remained ever since.

Since the occurrence of those events the English have remained undisputed masters of the province of Bengal, the capital of which has become the seat of government to which the governors of the other presidencies have been made subordinate. From this circumstance the political occurrences within this province must be considered as applicable to the whole of BRITISH INDIA, under which head will be given a statement of the rise, progress, and present condition of our Eastern empire.

Political divisions.—The province of Bengal is divided into seventeen districts as follows:—Backergunge, Birbhoom, Burdwan, Chittagong, Hoogly, Jessore, Mymansingh, Moorshedabad, Nuddea, Purneah, Rajshahy, Rungpore, Silhet, Tipera, the twenty-four pergunnahs, Midnapore, and the Jungle Mahals.

Population.—The population of these districts in 1822 was estimated at 23,358,750, in a statement given in the 'Appendix to the Report of the Select Committee of the House of Commons on the Affairs of the East India Company,' which made its report in 1831. This statement was given on the authority of a memorandum appended to the police report of Mr. Henry Shakespeare, superintendent of police in the Lower Provinces, in the year 1822, on which the Bengal government in their letter to the Court of Directors, dated the 3rd of November, 1826, observed: 'Its accuracy cannot be confidently relied on, but the calculations are probably not far wide of the truth.' The total population of the provinces immediately subject to the presidency of Bengal is stated in the same report to have been estimated in 1822 at 69,710,071 souls.

The cities and principal towns of the province are said to contain 1,214,000 inhabitants, who are thus distributed:—

Calcutta, including the suburbs	625,000
Dacca	180,000
Moorshedabad	150,000
Burdwan	53,000
Chandernagore	41,000
Purneah	33,000
Rajmahal	30,000
Dinagepore	28,000
Naraingunge	20,000
Malda	18,000
Gour	18,000
Chandercona	18,000

The remaining population is collected in villages, each containing from 100 to 500 inhabitants. These are principally built near the banks of navigable rivers, so that a stranger passing along the stream would form a very exaggerated notion of the populousness of the country.

The houses in Bengalese towns are not regularly arranged in the form of streets, but the residences of different divisions of the inhabitants are in different quarters: Hindus occupy one quarter, Mohammedans another, Europeans and their descendants another, and that quarter in which the Hindus reside is often further subdivided, so that different castes, or followers of different professions, are divided from the others; brahmins are not found intermixed with weavers, nor these with barbers, nor the last with cultivators, scribes, potters, &c. This subdivision, although pretty generally observed, is not universal. The houses of persons in easy circumstances are usually brick buildings.

with flat roofs, and mostly two stories high. The dwellings of the poorer classes are mere huts, or rather each family occupies a set of huts, each one of which is appropriated to its own particular use, and the whole are surrounded and divided from other dwellings by a fence. Except in the large towns, there are no inns, but travellers can always find an empty hut of which they may take possession.

Bengal is inhabited by various races, among which the Hindus may be estimated at four-fifths of the population. They are the aborigines of the country. Early in the thirteenth century, the conquest of India by the followers of Mohammed brought a considerable number of that sect into the province. The hilly country which forms the northern and eastern boundary of Bengal is inhabited by a race whose features prove them to have been of Tartar origin. Towards the west there is a mixed population, made up of various races, among whom Mohammedans and Afghans are the most numerous.

The Bengalese are in general men of handsome features and lively dispositions, but wanting in bodily strength, and of weak constitutions. Their manners towards superiors are mild, and their general character is that of pusillanimity. They are, notwithstanding, insolent and overbearing to their inferiors, and all authorities concur in assigning them a very low rank in the scale of moral character. In this respect they are among the most degraded of the native races of India; they are wanting in truth, honesty, and good faith to an extreme of which European society furnishes no example. 'The practice of cheating, pilfering, tricking, and imposing, are,' according to Mr. Charles Grant, 'so common, that the Hindus seem to consider them as they do natural evils. Menial servants who have been long in place, and have even evinced a real attachment to their masters, are, nevertheless, in the habitual practice of pilfering from them. Selfishness, in a word, unrestrained by principle, operates universally; and money, the grand instrument of selfish gratifications, may be called the supreme idol of the Hindus. The tendency of that abandoned selfishness is to set every man's hand against every man.' Speaking of the lowest class, Mr. Grant says, 'Discord, hatred, abuse, slanders, complaints and litigations, prevail to a surprising degree. No stranger can sit down among them without being struck with the temper of malevolent contention and animosity as a prominent feature in the character of the society. It is seen in every village. The inhabitants live among each other in a sort of repulsive state; nay, it enters into almost every family. Seldom is there a household without its internal divisions, and lasting enmities, most commonly, too, on the score of interest. The women partake of this spirit of discord. Held in slavish subjection by the men, they rise in furious passions against each other, which vent themselves in such loud, virulent, and indecent railings, as are hardly to be heard in any other part of the world. Though the Bengalese have not sufficient resolution to vent their resentments against each other in open combat, yet robberies, thefts, burglaries, river piracies, and all sorts of depredations where darkness, secresy, or surprise can give advantage, are exceedingly common, and have been so in every past period of which any account is extant. Benevolence has been represented as a leading principle in the minds of the Hindus, but those who make this assertion know little of their character. Though a Hindu would shrink with horror from the idea of directly slaying a cow, which is a sacred animal among them, yet he who drives one in his cart, galled and excoriated as she often is by the yoke, beats her unmercifully from hour to hour without any care or consideration of the consequence. Filial and parental affection appear equally deficient among them, and in the conjugal relation the characteristic indifference of the people is also discernible among those who come most within the sphere of European observation, namely, the lower orders.'

The picture here given is sufficiently unfavourable, but as it was drawn by one who passed a great part of his life among the people he has described, and attained a high rank among those intrusted with the management of the Company's affairs, and as, in all its main points, it has been abundantly confirmed by other writers of unquestionable authority, there is unhappily no reason for believing that it is false or overcharged.

A great part of the criminal jurisprudence of Bengal was, for a long series of years, occupied with the suppression of 'decoity,' or a system of robbing in gangs, and it is only within the last few years that any material check has been given to this practice. Decoity has been followed so completely as a profession, that instances have occurred where whole families have practised it from generation to generation. No obloquy is attached to the name of Decoit, which, on the contrary, has been considered to give the possessor a higher rank than that of a mere ryot or cultivator. The decoits of Bengal, unlike the professional robbers of other countries, have often settled homes, possess land, and associate freely with men of the most influence in their villages, to whom their profession is no secret. Decoits are found among Mohammedans as well as Hindus. When at length their guilt is established, they meet death with an indifference which, but for the little value that is attached to life in India by the lower classes, would pass for fortitude, a virtue the possession of which is at variance with the general features of their character; its substitute, indifference, which is exhibited by the detected robber, doubtless proceeds from the privations of various kinds under which their lives are passed, and the absence of all rational hope of ameliorating their lot in this life.

Out of 1649 cases of heinous crimes committed in the lower provinces of Bengal in 1828, as reported by the superintendents of police, 1260 were thefts and robberies committed without violence; of the remaining 389 the large proportion of 282 were attended with loss of life, 144 being classed as wilful murders, 122 as homicides, and 16 as having occurred in violent affrays.

Education.—There are few countries in which the bulk of the population is at once poor and well instructed, and the province of Bengal does not furnish an exception to this remark. The great schools or colleges in the cities and towns are mostly of recent establishment, and owe their existence to Europeans. These colleges, which will be noticed farther on, are undoubtedly useful establishments, but they are necessarily limited in their sphere, and however zealously promoted could, of themselves, effect but little towards educating the children of the native population. It is to schools in the villages, where nineteen-twentieths of the people live, that we must look for the chief good to follow from instruction. These schools are very numerous, indeed it is a rare case to find a village in Bengal unprovided with one, but it is still more rare to find one whose means are commensurate with the wants of the people. The instructors are, for the most part, incompetent, and if even this were not the case, the poverty of the people is such, that few among the villagers can spare from their scanty earnings the trifling sum requisite to pay for the effectual instruction of their children. It is customary for parents to send their boys to these schools at a very early age, when the charge made for their instruction is exceedingly low, but quite high enough in comparison with the benefit to be derived. The education of Hindu children generally begins when they are five years old, and the cases are rare in which pupils are continued in the schools after they are ten years of age. The reasons for this early removal are, the necessity under which the parents are placed to put their children as early as possible in the way of earning their own subsistence, and the fact that although the payments demanded by the instructors are at first so moderate as to be within the means of the greater number of parents, yet as their pupils make progress the fees required are increased out of all proportion, and to a degree which compels the greater part of parents to withdraw their children before they attain the age at which they could make most progress. Even when this cause is not allowed to operate, the amount of knowledge acquired is very limited, and comprises only reading, writing, and the elementary rules of arithmetic. Through an absurdity for which it is difficult to account, the reading which is taught is nearly useless to the pupils in after-life. The books most commonly used are composed in a language or dialect quite different from that in common use, so that the pupil learns to repeat a vast number of verses and phrases without knowing what they mean.

A few learned Brahmins are accustomed to give lectures in theology, astronomy, law, and logic, to all who choose to attend them, and without making any charge for their instructions, since they do not wish to compromise the dignity of science by bartering it for money. The number of their pupils is nevertheless small, very few youths being qualified by previous study for profiting by lectures upon such abstruse subjects. The only effectual means at present in operation for instructing the native population of the province are furnished by the government of the East India Company, and in a few cases from gifts, some of them munificent, contributed by wealthy natives in aid of establishments promoted by the government. The greater part of these establishments have been founded since the renewal of the Company's charter in 1813. Previous to that time the Mohammedan College, or Madrissa, of Calcutta was the only institution for educating native children under the direct patronage of the government within the province. This college was founded in 1781 by Warren Hastings. At the renewal of the charter in 1813 the Company was bound to expend one lac of rupees annually for this object. This sum (about 10,000*l.*) would do but little towards providing instruction for the population of the three presidencies, and the Company has not considered itself to be thus restricted by the terms of the enactment. In the six years from 1826 to 1830 inclusive, the expense on the score of education has amounted to 257,535*l.*, or 42,922*l.* per annum, on the average, and of this amount 185,030*l.*, or 30,838*l.* per annum, has been expended in the *presidency* of Bengal. There are no means of ascertaining what part of this sum was appropriated for educational purposes in the *province* of Bengal; a considerable proportion of it was spent for establishments at Agra, Delhi, and Benares, and a considerable sum was appropriated in Calcutta for providing school-books, which are thence supplied to all parts of British India.

When we consider the immensity of the field, comprehending a population more than four times as great as that of the United Kingdom, the sums here mentioned will appear to be quite inadequate to the end proposed, nor indeed does it seem possible for the English government to provide sufficient funds for insuring its accomplishment. It is not probable that this effect will ever be produced except through the general and hearty co-operation of the mass of the inhabitants, and this cannot be looked for except by slow degrees, as the natives rise from the state of poverty in which, for the most part, they now pass through life. This improvement may probably be accelerated by the increasing number of Europeans who are expected to avail themselves of the advantages held out by the recent alterations in the constitution of the East India Company, by forming trading and agricultural establishments in different parts of the country.

Commerce.—The external commerce of Bengal is of great magnitude. The following statement of imports and exports from Europe and America, during the year 1831-32, is the latest that has yet been completed :—

Imports into Bengal.

	Merchandise. Rupees.	Treasure. Rupees.	Total. Rupees.
From Great Britain	1,72,27,917	. .	1,72,27,917
„ Foreign Europe	3,72,038	5,625	3,77,663
„ N. & S. America	8,89,037	9,06,402	17,95,439
Total imports	1,84,88,992	9,12,027	1,94,01,019

Exports from Bengal.

To Great Britain.	Merchandise. Rupees.	Treasure. Rupees.	Total. Rupees.
By the E. I. Comp.	96,79,862	73,89,815	1,70,69,677
„ private merchants	1,18,40,413	36,42,784	1,54,83,197
Total to Gr. Britain	2,15,20,275	1,10,32,599	3,25,52,874
To Foreign Europe	17,72,003	. .	17,72,003
„ N. & S. America	34,70,363	. .	34,70,363
Total exports	2,67,62,641	1,10,32,599	3,77,95,240

The great difference here observable in the amount of imports and exports is not, as might be supposed, accidental, nor is it peculiar to the year for which the statement is given, but is uniformly experienced, and in nearly an equal degree. This difference affords good evidence of the pecuniary advantage derived by this country from its connexion with India. The balance which during a course of years is thus brought from that country, exhibits the profits or savings of the proprietors of East India stock, and of individual European traders or residents whose surplus funds are sent to this country, to which the possessors return from time to time in order to enjoy their accumulations.

A considerable part of the trade between India and China is carried on from Calcutta. The shipping employed in this branch of trade in the five years from 1827-28 to 1831-32 was as follows :—

	From Calcutta to Canton. Ships.	From Calcutta to Canton. Tons.	From Canton to Calcutta. Ships.	From Canton to Calcutta. Tons.
1827-28	27	17,079	18	6,159
1828-29	16	11,544	14	5,928
1829-30	18	5,373	16	4,855
1830-31	25	10,112	20	7,278
1831-32	25	8,485	20	6,711

The most valuable part of this trade, as regards its amount, is the shipment of opium to China, the extent of which appears from the following statement :—

Statement of the Consumption and Value of Indian Opium in China, in each Year, from 1816-17 *to* 1830-31.

From April 1, to March 31.	PATNA AND BENARES OPIUM.					MALWA OPIUM.					Total.	
Seasons.	Chests.	Highest Price.	Lowest Price.	Average.	Value.	Chests.	Highest Price.	Lowest Price.	Average.	Value.	Chests.	Value.
		Dollars.	Dollars.	Dollars.	Dollars.		Dollars.	Dollars.	Dollars.	Dollars.		Dollars.
1816-17	2,610	1,320	1,080	1,200	3,132,000	600	950	800	875	525,000	3,210	3,657,000
1817-18	2,530	1,330	1,200	1,265	3,200,450	1,150	* 800	* 600	612	703,800	3,680	3.904,250
1818-19	3,050	1,200	800	1,000	3,050,000	1,530	850	600	725	1,109,250	4,580	4,159,250
1819-20	2,970	1,320	1,150	1,235	3,667,950	1,630	1,400	950	1,175	1,915,250	4,600	5,583,200
1820-21	3,050	2,500	1,300	1,900	5,795,000	1,720	1,800	1,230	1,515	2,605,800	4,770	8,400,800
1821-22	2,910	2,500	1,650	2,075	6,038,250	1,718	1,600	1,050	1,325	2,276,350	4,628	8,314,600
1822-23	1,822	2,550	2,080	1,552	2,828,930	4,000	1,500	1,080	1,290	5,160,000	5,822	7,988,930
1823-24	2,910	2,500	1,100	1,600	4,656,000	4,172	1,050	800	925	3,859,100	7,082	8,515,100
1824-25	2,655	1,450	900	1,175	3,119,625	6,000	950	550	750	4,500,000	8,655	7,619,625
1825-26	3,442	1,150	800	913	3,141,755	6,179	850	560	723	4,464,450	9,621	7,608,205
1826-27	3,661	1,250	800	1,002	3,668,565	6,308	1,060	860	942	5,941,520	9,969	9,610,085
1827-28	5,134	1,220	815	998	5,125,155	4,401	1,420	950	1,204	5,299,920	9,535	10,425,075
1828-29	5,965	1,100	880	940	5,604,235	7,771	1,250	750	968	6,928,880	13,132	12,533,115
1829-30	7,143	1,000	805	860	6,149,577	6,857	1,030	710	862	5,907,580	14,000	12,057,157
1830-31	6,660	1,050	790	870	5,790,204	12,100	760	520	588	7,114,059	18,760	12,904,263

Opium forms more than one-half of the value of the cargoes sent from the different presidencies in India to China. The trade in this drug is contraband; the vessels in which it is sent are wholly laden with it and remain at Lintin, to which place the Chinese traders resort with their junks, having previously agreed for the purchase, and paid the price in money to an agent in Canton, by whom they are furnished with orders, addressed to the master of one of the ships, for the delivery of the stipulated number of chests.

The other principal articles shipped from Bengal to China are saltpetre, pearls, cornelians, coral, woollen and cotton manufactures of Europe, and rice. The returns have been made in silver bullion, known as Sycee silver, and in bills of exchange drawn upon the government at Bengal by the factory at Canton, and given in payment for the investment of tea sent to Europe. A different course will necessarily be given to this trade, now that the commercial character of the East India Company has been discontinued.

The following table contains a statement of the value of the trade carried on between Bengal and the Arabian and Persian Gulfs, in the seven years from 1821-22 to 1827-28, the latest period to which the returns are brought down :—

There is evidently an error in the numbers 800, 600, in one or both; but we have strictly followed the original account.

Years.	IMPORTS.					EXPORTS.				
	English.		Arab.		Value of Imports.	English.		Arab.		Value of Exports.
	Ships.	Tons.	Ships.	Tons.	Rupees.	Ships.	Tons.	Ships.	Tons.	Rupees.
1821-22	11	4,446	16	7,770	36,25,178	15	6,748	18	7,461	47,40,902
1822-23	10	4,071	11	4,800	38,54,718	10	4,261	10	4,177	34,64,404
1823-24	12	4,617	10	4,331	24,18,321	6	1,833	9	4,385	34,15,597
1824-25	3	956	10	4,378	18,19,883	4	1,752	7	3,455	27,18,344
1825-26	2	505	11	4,954	22,53,338	7	2,938	10	3,641	31,47,972
1826-27	3	902	11	4,547	11,56,276	17	6,525	8	3,273	21,86,501
1827-28	9	3,604	15	6,256	21,27,048	9	3,958	14	6,259	22,54,434

About-two-thirds of the trade between the continent of India and the eastern islands is carried on with Bengal. Its amount in the three years from 1829-30 to 1831-32 is here given:—

Years.	Imports.		Total Imports.	Exports.		Total Exports.
	Merchandise.	Treasure.		Merchandise.	Treasure.	
	Sicca Rs.	Sicca Rs.	Sicca Rs.	Sicca Rs.	Sicca Rs.	Sicca Rs.
1829—30	17,58,860	14,93,804	32,52,664	44,95,865	27,770	45,23,635
1830—31	20,71,978	21,42,222	42,14,200	44,76,357	55,076	45,31,433
1831—32	12,29,572	10,70,127	22,99,969	21,66,796	24,732	21,91,528

The trade between these islands and the presidencies of Madras and Bombay, during the same years, amounted to the following sums:—

Years.	MADRAS.		BOMBAY.	
	Imports.	Exports.	Imports.	Exports.
	Madras Rupees.	Madras Rupees.	Bombay Rupees.	Bombay Rupees.
1829-30	16,00,415	23,47,227	77,436	6,97,490
1830-31	19,51,972	17,37,137	8,36,031	4,18,929
1831-32	1,06,896	1,19,069	8,79,236	5,11,327

The trade of Bengal with England comprehends an immense variety of objects. The principal articles of import are various metals, foreign wine and spirits, beer, woollen and cotton cloths, cotton yarn, glass, and hardware; in return for which the exports are, silk and silk manufactures, indigo, sugar, saltpetre, and lac-dye. Of these articles indigo is by far the most important, its value being equal to nearly one-half the total exports to Europe from the province. It is principally cultivated in Moorshedabad, Nuddea, and Jessore in Bengal, and Tirhoot in Bahar, where there are altogether from 300 to 400 factories in operation. But little indigo was exported from India before the beginning of the present century. Cotton can hardly be said to form part of the export trade of Bengal, which province does not produce more of that article than is required for the use of the inhabitants. During the period when all the fine muslins consumed in Europe were exported from India, the quantity of cotton grown in Bengal did not equal one-eighth of the quantity worked up there into piece goods. The necessary supply was imported from the Deccan, the Dooab, and various parts of the Maharatta country. In one particular year, the value of cotton which passed through the frontier custom-house of Manjee at the confluence of the Gogra and Ganges, amounted in value to a crore of rupees (one million sterling), but this was an extraordinary importation, and a considerable part of it was shipped from Calcutta to this country. One of the most extraordinary revolutions in trade that was ever witnessed has been brought about by the cotton-spinning and weaving machinery in this country, previous to which the cotton piece-goods brought from India formed the bulk of what was used in Great Britain. Now, the comparatively small importations are all, or nearly all, re-exported, and we in our turn have become manufacturers for a great part of the population of India. The quantity of cotton goods exported to that quarter in 1833 was sixty millions of yards, besides five million pounds of cotton twist, for the use of the Bengalese weavers. This trade has grown up since the opening of the intercourse with India on the part of private adventurers in 1813.

With the exception of the districts on the eastern frontier, silk is grown in every part of the province of Bengal, and forms a considerable part of its exports; nearly the whole quantity of raw silk that is shipped is sent to England, which likewise receives more than half of the silk fabrics exported from the province.

Sugar, which has for a long time been largely produced in this province, does not form a great proportion of its exports, a fact which may be attributed to the imposition of discriminating duties in favour of the sugar of other possessions, by the only countries likely to become consumers of the produce of Bengal. It is probable that the distinction thus made by the legislature of this kingdom, in favour of our West Indian possessions, will not be persisted in much longer, and in that case it is confidently expected that Bengal would contribute very largely to the supply of our markets with an article now become one of the necessaries of life.

Saltpetre is another article of importance in the external commerce of Bengal. Nearly seven-eighths of the whole quantity shipped from the province comes to this country. This branch of trade is valuable, from its furnishing a material part of the freight of homeward-bound ships, the weight and bulk of saltpetre being great in proportion to its money value, while the opposite condition holds with regard to the greater part of the productions of India. When the contemplated alteration shall be effected in regard to the duty on sugar, this article will offer a similar advantage to ship-owners, and in a much greater degree than saltpetre.

The import trade of Bengal from England may be expected to fall short of its former amount, now that our private merchants have direct intercourse with China. A great part of what is called 'the country trade,' between Calcutta and Canton, has consisted of British manufactures, which now go direct from London and Liverpool.

From France Bengal receives wine and brandy in much larger quantities than the same articles were formerly supplied by England. The returns are principally made in saltpetre and indigo.

To Portugal cotton piece-goods form the principal export: the imports consist almost wholly of bullion and wine. As regards the latter article, a great alteration has occurred of late years, in the substitution, by the European residents in India, of sherry for Madeira wine; and, on the other hand, the piece-goods of India are now mainly superseded in Portugal by the cheaper products of English looms. A large part of the trade of Portugal with China has been carried on intermediately through Calcutta, at which port the Portuguese traders take in opium and cotton, the returns for which go direct from Canton to Portugal, or to the transatlantic possessions of that country. A trade nearly similar in its character has been kept up between Bengal and Brazil, since the political separation of the latter country from Portugal, but this commerce has declined in amount of late years.

The United States of America take from Bengal silk, piece-goods, and indigo, with some other articles of Indian produce to a small amount. North America has little to offer of its own produce in exchange, and consequently the imports thence consist mostly of specie, or of metals and manufactured goods procured from Europe. Of late years, some common cotton fabrics of America, under the name of 'domestics,' have found a market in Bengal.

Bengal exports to Java piece-goods and opium, and receives in return copper of Japan, Banca tin, with pepper and spices, the produce of Java. The trade with Sumatra has nearly ceased, since the cession of Bencoolen to the Dutch. To Manilla cotton piece-goods are sent; the returns are copper and silver from the South American mines, and a few trifling articles of fragrant woods and spices, the produce of the Philippine isles.

From the Coromandel coast chank-shells are brought, to a considerable value. These shells are employed by the Hindus in their religious worship, and are cut into bracelets, or worn round the ancle: payment for them is usually made in rice, and in some European goods. Ceylon supplies Bengal with cocoa-nut oil, coir, a few pearls, some spices, and chank-shells, in return for piece-goods, sugar, silk, and rice. Teak timber, sandal-wood, coir, cocoa-nuts, and some drugs are received from Malabar, which takes in payment piece-goods, metals, and British woollens, with dates, raisins, coral and pearls brought from the Arabian and Persian Gulfs. From the countries bordering on these gulfs Bengal receives Persian copper, almonds, dates, coffee, gums, pearls, coir, cocoa-nuts, pepper, and bullion, the last in a large proportion, chiefly in the form of Spanish dollars, Persian rupees, gold tomauns, and Venetian sequins. The returns are made in cotton piece-goods, silk goods, indigo, sugar, and grain.

The Mauritius is supplied with large shipments of rice from Bengal, and gives in return pepper and spices from the Malabar coast.

Penang, and of late years Singapore, have been the chief entrepôts of the trade carried on between Bengal and the straits of Malacca, Borneo, Celebes, and the Molucca islands. The most valuable part of the import trade from this quarter is treasure, in the form of gold-dust from Borneo and Sumatra, and dollars and Sycee silver brought by Chinese vessels. Besides the precious metals, Bengal receives pepper, spices, tin, various drugs, betel-nut, and wax. Cotton piece-goods, opium, and rice form the principal articles of export from Bengal to these settlements.

From the Burmese empire Bengal imports timber and planks, with a considerable value of gold and silver treasure, both of which metals are in the form of circular flat cakes of various sizes and standards, from pure gold or silver to two-thirds alloy. Small quantities of wax, sapan-wood, ivory, and drugs are likewise furnished by this trade to Bengal, which returns British cotton goods, grain, indigo, sugar, and opium.

Military Forces.—In estimating the military force of Bengal, it is not possible to separate the proportion employed in the province from that stationed in other provinces under the same presidency. The following numbers must therefore be taken as applicable to the entire possessions of the British within the presidency of Bengal, including Benares, Bareilly, the ceded districts on the Nerbudda, and districts ceded by the rajah of Berar.

According to a return made from the India House by the military secretary in 1832, the military force in Bengal, according to the most recent accounts, was as follows:—

Engineers—Officers, European		44		
Native		12		
			56	
Non-commis. Officers and Privates			813	
				869
Artillery—Europ., Horse, Offic.	45			
Privates	1,313			
		1,358		
„ „ Foot, Officers	89			
Privates	2,956			
		3,045		
			4,403	
„ Native, Horse, Offic.	18			
Priv.	407			
		425		
„ „ Foot, Officers	85			
Privates	3,029			
		3,114		
			3,539	
				7,942
Cavalry—Euro. (King's) Offic.	54			
Priv.	1,181			
		1,235		
„ Native (Comp.'s) Offic.	463			
Priv.	8,748			
		9,211		
				10,446
Infantry—European, Officers	289			
Privates	8,061			
		8,350		
„ Native, Officers	2,964			
Privates	77,518			
		80,482		
				88,832
Carried forward				108,089
Brought forward				108,089
Invalids				2.746
Pioneers				851
Hospital—Surgeons and Assist.-Surgeons			222	
Native Doctors			235	
				457
Staff, including Commissariat				440
Total				112,583

The expense of this army, as stated in the same return by the auditor of Indian accounts, amounted to the gross sum of 4,329,537*l*. It does not appear that the cost of military stores sent from England is included in this statement.

Revenue, &c.—It is not possible to draw any distinction between the financial results of the province of Bengal and those of the entire presidency, which latter, therefore, are here given, under different heads, for the year 1832-33, the latest for which any detailed account has been given:

Revenues and Charges of the Bengal Presidency for the year 1832-33.

		Rupees.
Land revenue		6,54,03,293
Stamp duties		25,71,948
Sayer and Abkaree revenues		40,03,401
Salt monopoly	1,72,62,960	
Cost and charges	58,73,396	
		1,13,89,564
Opium monopoly	1,15,11,841	
Cost and charges	38,43,579	
		76,68,262
Customs		70,73,727
Other receipts		87,17,698
		10,68,27,893
Charges of collecting stamp duties, land sayer and Abkaree revenues, and custom duties	1,13,02,630	
Civil and political charges	87,15,451	
Judicial and police	1,08,97,894	
Military and miscellaneous	4,26,91,451	
	7,36,07,426	
Interest on debt	1,52,14,969	
		8,88,22,395
Surplus revenue		Rs. 1,80,05,498
		or £1,800,549

(Ayin-i-Akbari; Rennell's *Memoir of a Map of Hindustan;* Mills's *History of British India;* Mr. Charles Grant's *Observations on the State of Society among the Asiatic Subjects of Great Britain;* various Reports of Committees of both Houses of Parliament appointed to inquire into the affairs of the East India Company in 1821, 1828, 1830, 1831, and 1832; *Tables of the Revenue, Population, &c. of the United Kingdom*, part iii.; Wilson's *Review of the External Commerce of Bengal* (published in Calcutta); M'Pherson's *History of the European Commerce with India;* Dr. Francis Hamilton's (late Buchanan) *Statistical Survey of certain Districts of Bengal;* MS. in the Library of th East India Company.)

BENGALI LANGUAGE. Among the numerous vernacular dialects now spoken in northern India, and apparently descended for the most part from the ancient classical language of the country, the Sanscrit, few possess stronger claims upon the attention of the linguist as well as the politician than the Bengâlî, the colloquial medium of a population of more than twenty millions, spread over a territory of about 100,000 square miles. The alphabet employed by the natives in writing, and adopted by Europeans in printing books in the Bengâlî language, is evidently borrowed from the Devanâgari, the character peculiarly appropriated to fix the Sanscrit language: both comprise fourteen vowels and diphthongs, and thirty-three consonants. The resemblance in form which the Bengâlî bears to the Devanâgari character is nearly the same as that of the current English handwriting to the form of letters employed in printing. The ground-work of the Bengâlî language is altogether Sanscrit, just as that of the Italian or Spanish is Latin, with a comparatively small addition of words which cannot be traced to that source. But the refined system of grammatical inflexions, which constitutes so prominent a characteristic of the Sanscrit language, has in Bengâlî almost entirely disappeared; and the want of terminations marking the cases and numbers of the noun, or the persons and tenses of the verb, is supplied by particles and other auxiliary words, often rather clumsily subjoined (hardly ever prefixed) to the mutilated stems of Sanscrit words. The Bengâlî has, however, preserved to a very considerable extent the faculty, so conspicuous in Sanscrit, of forming compound words, and recent writers have largely availed themselves of this advantage, especially in treatises on Hindu law and on philosophical subjects: we allude especially to the Bengâlî translation of the second book of the *Mitâksharâ* (a Sanscrit law-book of high authority), published by Lakshmî Nârâyana Nyâyâlankâra (in 1824, 8vo.), and to that of the *Nyâyadarsana*, by Kâsinâtha Tarkopanchânana (Calcutta, 1821, 8vo.).

It does not appear that the Bengâlî language was ever employed for literary purposes prior to the sixteenth century. The earliest Bengâlî work extant is the *Chaitanya-Charitâmrita*, by Krishnadâsa, a disciple of the Vaishnava fanatic Chaitanya, the founder of a new mode of the worship of Krishna, who lived towards the close of the fifteenth century. This work, which is said to be almost as much Sanscrit as Bengâlî, was till within very recent times followed by only a few compositions, the most important of which were the poetical versions, from Sanscrit into Bengâlî, of the *Mahâbhârata*, by Kâsidâsa, and of the *Râmâyana*, by Kîrtivâsa; these works are very popular in Bengal, and are frequently recited at the houses of Hindoos during several days, before assemblies of two or three hundred auditors. Khemananda is named as the author of a hymn called *Manasâ-mangala*, which is still recited at the festivals in honour of the goddess Manasâ, in the western provinces of Bengal. A treatise on arithmetic, written in verse, is ascribed to Subhancara: this work, and a treatise called *Gurudakshinâ*, appear to have been the only elementary books composed by natives of Bengal for the purposes of education. A new epoch in Bengâlî literature seems to have begun with the foundation of the college of Fort William near Calcutta, and with the labours of Dr. Carey and his colleagues the Serampore missionaries, to whom, according to the expression of a native author, may be ascribed 'the revival of the Bengâlî language, its improvement, and in fact its establishment as a language.' The Bible and various works of modern literature were translated into Bengâlî, and printed: among others, 'Bunyan's Pilgrim's Progress,' by F. Carey (Serampore, 1821), 'Rasselas,' by Râjâ Krishnachandra Roy, and the 'Discourse on the Advantages of Knowledge,' published by the Society for the Diffusion of Useful Knowledge. At the same time various elementary works were printed, partly by the mission press at Serampore, and partly under the superintendence of the Calcutta School-Book Society. An impulse was thus given to the cultivation of the language among Europeans as well as among the natives, and the taste of the latter for reading is attested by the fact that no less than six newspapers in the Bengâlî language are now circulated in Calcutta and its vicinity. One of the latest publications in Bengâlî that has come under our notice is 'A Dictionary in English and Bengâlî, translated from Todd's edition of Johnson's English Dictionary, by Râm Comulsên' (Serampore, 1834, 2 vols, 4to.), a work which does high honour to the zeal and perseverance, and, as far as we may presume to give an opinion, to the talent and skill of the translator. (See the account of this work given by a competent judge in the (London) *Asiatic Journal*, for April, 1835, pp. 221—236.) We are indebted to the author's preface for the greater part of the preceding remarks concerning the literature of the Bengâlî language.

To Europeans who wish to commence the study of the Bengâlî language, the following elementary works and dictionaries may be recommended: *A Grammar of the Bengâlî language, by the* Râjâ Rammohun Roy (Calcutta, 8vo.); *Rudiments of Bengâlî Grammar, by* G. C. Haughton (London, 1821, 4to.); *Bengâlî Selections, with a translation and a vocabulary*, by the same author (London, 1822, 4to.). Dictionaries in Bengâlî and English have been published by H. P. Forster (Calcutta, 1799, 2 vols. 4to.); Dr. Carey (Serampore, 1825, 3 vols. 4to.; abridged in 2 vols. 8vo. by F. Carey and Marshman, Serampore, 1827—30); W. Morton (Calcutta, 1828, 8vo.); and Sir G. C. Haughton (London, 1833, 4to.).

BENGA'ZI, a town of Barbary, situated at the eastern entrance of the Greater Syrtis, in the district of Barca. It stands close on the sea-shore, at the extremity of a beautiful plain, extending to the foot of the Cyrenaic chain of mountains, which are fourteen miles to the S.E. The coast is sandy for about half a mile inland, but beyond there is a mixture of rock and excellent soil, which is well wooded, and supplies the town abundantly with corn and vegetables; cattle and sheep are brought from the neighbouring mountains.

The port appears formerly to have been capable of containing vessels of two and three hundred tons burden; but it is fast filling up with sand and alluvium, brought down by the heavy rains which annually deluge the town, and boats only can now enter where, fifty years ago, large ships used to lie. It is well protected by a reef of rocks lying across at a short distance from the mouth, which leave a narrow and difficult channel on each side, only accessible to vessels drawing seven or eight feet water. The harbour doubtless communicated in former times with a large salt-water lake (probably the Tritonis of Strabo, p. 836) to the southward of the town, but from the accumulation of sand this communication is now interrupted during the summer months. At the entrance of the harbour stands the castle, constructed on the ruins of some antient building, which are still visible above the soil; but the present structure is so slightly put together with small stones and mud, that it is deemed prudent not to fire salutes from it. It is provided with nine guns, eighteen-pounders; its form is square, with round towers at three of the angles; but the fourth, the only one which would prove offensive to vessels entering the harbour, is occupied by a pile of buildings appropriated to the harem of the governor.

The houses, like most Arab buildings, are constructed of rough small stones, cemented with mud instead of mortar. They consist of a ground-floor only, which is built round a quadrangular open court-yard, into which the doors of the several chambers open, but the chambers seldom communicate with each other: this court-yard is not paved, and in the better class of houses there is a well in the centre. The roofs are flat, formed of rafters, over which are laid mats, then a quantity of sea-weed or other vegetable rubbish, and over the whole a thick stratum of mud, beat down to form a terrace, on which it is not uncommon to see grass and barley growing, and goats feeding very contentedly. Those who can afford it spread a preparation of lime over the mud, which forms a surface impervious to the weather, as long as the coating remains in good condition, and serves to collect the rain into some general reservoir. During the heavy rains which occur from January till March every year, these frail fabrics give way, and fall in on their indolent tenants, who generally neglect all repairs till they are roused from their lethargy by the screams of wife and children, frequently seriously wounded by the fall of the roof. At this season the streets are literally converted into rivers, the market is without supplies, from the impossibility of driving the cattle into town, and many thousand sheep and goats perish from the bleak winds and chilling rains which then prevail.

The market-place contains a pool of stagnant and putrid water, which is the common receptacle for all the blood and offal of the animals killed there, and of these offensive pests there are several in various parts of the town. From this and the general filth of the place, it is not surprising that Bengazi has become proverbial for flies, the swarms of which are really a most serious nuisance during the day, and are exchanged at night for myriads of fleas and mosquitoes.

Bengazi is in the dominions of the pasha of Tripoli, under whom it is governed by a bey, generally connected with the pasha's family, as from its commerce it is considered a lucrative appointment. The bey, his officers, and the troops reside in the castle. The town contains about 2000 inhabitants, a large proportion of whom are Jews and negro slaves: the former, in spite of the many heavy exactions on them, are the principal merchants and tradesmen of the place. The exports consist chiefly of cattle, corn, and wool; for the first of these Malta always offers a ready and (with a favourable passage) a lucrative market: indeed this branch alone employs a great number of small vessels during the summer months.

Dysentery, liver complaints, cutaneous diseases, and fevers are common in Bengazi, but cases of ophthalmia are comparatively rare. Ships touching at this port are always sure to find a plentiful supply of beef, mutton, and poultry, with fruit, vegetables, and water. The fig and palm flourish abundantly; the fig-tree, for the most part wild, produces only a small fruit, which never comes to perfection; but the fruit of the palm-tree forms too essential a part of Arab food to allow the natives to neglect any of the necessary precautions for ensuring the growth and ripening of dates.

Bengazi occupies the site of the Berenice of the Ptolemies, and of the Hesperis of earlier times, one of the Cyrenaic cities; but very few remains now appear above ground to mark its former importance, and Berenice has disappeared beneath a soil which now only bears a miserable dirty Arab town. Very extensive remains are, however, still found within half a mile around Bengazi, at the depth of a foot or two below the surface; and whenever a house is intended to be built, the projector has only to send a few men to excavate in the neighbourhood to discover the most beautiful specimens of Grecian architecture; but as these are generally too large for the purposes of modern buildings, they are broken up on the spot into small pieces, to be imbedded in the mud which forms the greater portion of the present dwellings.

Though the walls of Berenice were completely rebuilt by Justinian (Procopius *περὶ κτισμάτων*, book vi.), scarcely a vestige of them now remains above the ground; but to the north of the town reservoirs may be traced, with troughs of stone, which served either for the reception of rain or other water brought from the springs of sweet water about half a mile to the eastward of the town, where all the wells are at present brackish. At the time of the heavy rains, many coins and gems are continually washed down from this spot, where a bank of twenty or thirty feet has been formed by the rubbish of the antient city. From the nature of the country immediately around, its lakes and swamps, it is probable that Berenice did not extend much beyond the limits of the present town. It is remarkable that in the quarries whence the materials for the antient city were procured, which, when not far from the town, were usually excavated for tombs, no sepulchral traces could be found: they must, therefore, be sought beneath the soil with other remains.

Some of these quarries are sunk perpendicularly down below the plain to a considerable depth, and are not visible till closely approached. Besides these there are some singular chasms of natural formation, whose bottoms present a flat surface of excellent soil, several hundred feet in length, enclosed within steep and for the most part perpendicular sides of solid rock, rising to the height of sixty or seventy feet before they reach the level of the plain. They generally present a scene of the greatest luxuriance; and in these calm and beautiful retreats the authors from whom we quote appear to recognise the far-famed gardens of the Hesperides described by Scylax. (Hudson's *Minor Geogr.* vol. i.) In support of this hypothesis, they also adduce Pliny (v. 5) and Ptolemy, corroborated by the original name of the town, which was called the town of the Hesperides.

Some of these chasms have assumed the form of lakes, in most of which the water appears to be very deep, rising in some nearly to the top, and in others about twenty feet below. There are also several subterranean caves, one of which, at the depth of about eighty feet below the surface of the plain, contains a large body of fresh water, said to run far into the earth, and in some places thirty feet deep. This cave widens out into a spacious chamber, the sides of which have evidently been shaped by the chisel, and it rises to a considerable height. This body of water has been supposed to be the Lethon or Ladon river of the antient writers. The lake at the back of the town may probably be the Tritonis of Strabo, but the island in it on which stood the Temple of Venus has disappeared. The neighbourhood of Bengazi still offers much for the research of the intelligent traveller. Bengazi Castle lies in 32° 7′ N. lat., 20° 3′ E. long.

(Beechey's *Expedition into Africa*; Della Cella's *Narrative*; Pacho's *Voyage dans la Marmarique, la Cyrenaïque, &c.*)

BENGEL. The writings of few German divines have exercised so much influence upon English Christians as those of Johann Albrecht Bengel. Few have read his works, but many are influenced by their readers. John Wesley states in the preface to his explanatory notes upon the New Testament, which are a symbolical book *, or one of the standards of the Methodist connexion, and to which every Wesleyan methodist preacher has to declare his assent, 'I once designed to write down barely what occurred to my own mind, consulting none but the inspired writers; but no sooner was I acquainted with that great light of the Christian world (lately gone to his reward) Bengelius, than I entirely changed my design, being thoroughly convinced it might be of more service to the cause of religion were I barely to translate his "Gnomon Novi Testamenti," than to write many volumes upon it. Many of his excellent notes I have therefore translated; many more I have abridged; omitting that part which was purely critical, and giving the substance of the rest. Those various readings likewise which he has showed to have a vast majority of antient copies and translations on their side, I have without scruple incorporated with the text; which, after his manner, I have divided all along (though not omitting the common division into chapters and verses, which is of use on various accounts) according to the matter it contains, making a larger or smaller pause, just as the sense requires. And even this is such an help in many places, as one who has not tried it can scarcely conceive.'

Dr. Adam Clarke, in his Commentary on the Bible, passes a similar encomium upon Bengel.

Bengel was born on the 24th June, 1687, at Winnenden, about fifteen miles from Stuttgard; his father was a Lutheran clergyman in Winnenden. His first instruction he received from his father, who, contrary to the harsh practice of those times, employed an easy and agreeable method of teaching. Bengel enjoyed but for a short time the care of his father, who died of an epidemic, which raged in his native town, in the year 1693: he was in the habit of visiting the meanest habitations of the poor, and thus died in the discharge of his ministerial duties. The armies of Louis XIV. invaded the country a few months after the death of Bengel's father, and burned the house which his mother had bought. His father's library was destroyed in the conflagration. From this time Bengel was educated and supported by David Wendel Spindler, a friend of his father's. This gentleman kept a school in the castle at Winnenthal, but was afterwards driven from place to place, until he was appointed, in 1699, one of the masters of the grammar school at Stuttgard. He took Bengel with him wherever he went. At Stuttgard, Bengel made very satisfactory progress in the antient and modern languages, but would have been deprived of a university education, had it not been for his mother's marriage, after ten years widowhood, with Johann Albrecht Gloeckler, who was steward to the convent at Maulbronn. It is to this pious man the church owes the services of Bengel, who was received in 1703 into the theological college at Tübingen, where he studied, for the first year, philosophy and philology, and afterwards theology. He continued here until 1707, when he finished his academical career by a public disputation, 'De theologiâ mysticâ,' and then became curate in the parish of Metzingen. He had not been there a fortnight, before he discovered his inefficiency to discharge faithfully the duties of a minister of the Gospel, and the general defects of a university education for this purpose. In about a year he was recalled as tutor to his college. He himself states his opinion, 'That it is very desirable, after having acquired in a country parish a practical turn of mind (gustum plebeium et popularem), to return to college to study divinity afresh.' At this time he wrote an essay on the holiness of God, 'Syntagma de Sanctitate Dei,' in which he especially endeavours to prove that, according to Scripture and reason, all divine attributes are contained in holiness. Soon afterwards he was appointed preceptor of the seminary at Denkendorf, where he read especially the letters of Cicero with his pupils, among whom he maintained a mild but strict discipline. Bengel did not destroy the natural playfulness of the youths committed to his care. At a later period of his life he became prelate * in Würtemberg. Though Bengel was so weakly after his birth, that he received private baptism, nevertheless he reached the age of sixty-five years. He was several times subject to dangerous disorders, especially in the latter part of his life. It became his habit to consider life as a constant tendency to death, and he endeavoured to familiarize himself with the thoughts of death; but he did not agree with those divines who consider the whole of divinity to be nothing more than the art of dying.

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* Libri symbolici is the name given to confessions of faith in general, and to those of the Lutheran church in particular.

* The title prelate in Würtemberg nearly corresponds to that of bishop in England.

According to Bengel, the Christian has not so much to wait for death as for the appearance of Jesus Christ, and the most important business for every man is to come from a state of sin into a state of grace, and afterwards not to look for death, but for the Lord. Death had originally no place in the economy of God, and was only introduced afterwards. Bengel did not think highly of the artificial mode of dying, and followed his own ideas on death. He would not die with spiritual pomp, but in a common way, and was employed to the last with his proof-sheets. It was as if he was called out of his room during the hours of work.

Bengel left a numerous family: many of his descendants still remain, although six of his twelve children died before him. His great-grandson Burk, a clergyman in the kingdom of Würtemberg, published in 1831 a life of Bengel, which contains more authentic statements than former biographies, and is about to appear in an English translation.

The literary fame of Bengel has been principally established by his excellent edition of the Greek Testament, which excited the emulation of Wetstein, and facilitated the subsequent researches of Griesbach, Scholz, and Lachmann. His 'Novi Testamenti Græci recte cauteque adornandi Prodromus' was printed at Stuttgard, 1723, 8vo., and also at Tübingen, 1734 and 1790; 'Cyclus, sive de anno magno Solis, Lunæ, Stellarum Consideratio,' Ulm, 1745, 8vo.; 'Ordo Temporum, a principio per Periodos Œconomiæ Divinæ,' Stuttgard, 1753, 1770, 8vo.; 'Tractatus de Sinceritate N. Test. Græce,' Halle, 1763, 4to.; 'Apparatus Criticus Novi Testamenti,' Tübing. 1763, 4to.; 'Gnomon Novi Testamenti in quo ex nativa verborum vi simplicitas, profunditas, concinnitas sensuum cœlestium indicatur;' the best edition was printed at Ulm, 1763, 4to., Tübing. 1773, 4to. His 'Introduction to the Exposition of the Apocalypse' was translated by J. Robertson, M.D., Lond. 1757, 8vo. This, as well as his 'Reden über die Offenbarung Johannis,' have still their admirers, who see in the events of our days the fulfilment of Bengel's Apocalyptical predictions.

We translate the following extracts in order to show the character of Bengel.

'There is no stronger proof of the truth of the Holy Scriptures, and of all relations, doctrines, promises, and threatenings contained therein, than the Holy Scriptures themselves. (Veritas sui ipsius est index.) Truth compels us to adopt it; I recognise the hand-writing of a friend without the messenger's telling me from whom the letter comes; the sun is not seen by means of a torch, or any other heavenly body, but from its own rays, although a blind man cannot comprehend how this is.

'The efficacy of the divine word is supernatural; sometimes it overpowers, especially such to whom it is new; it unexpectedly captivates them and kindles faith in them before they have thought what is faith, and why they should give credit to it. This is something else than to be convinced of human histories and mathematical proof. But every one should endeavour to handle the word of God decently, which is done if we search and examine everything, and accept the truth as something desirable because it is truth; and if we consequently obey the will of God and call for his assistance, and by an endeavour to grow constantly in the knowledge of our Lord, and to show to others the right way. Those who do this obtain an internal assurance (John vii. 17, viii. 31, 32; Romans xii. 2); only such as do this obtain true wisdom, communion with Jesus, the seal of the Holy Ghost, and a foretaste of eternal joy.

'The Holy Scriptures should be more read in the churches. Ingenious ideas, ornamental figures, audacious conclusions, high, strong, and fiery words, falsely so called, since they are cold as ice, are of very little moment; because if edification consist in admiration of fine inventions, in a mental pleasure, and a gratification of the ears, the very thing takes place which St. Paul calls to make the Cross of Christ being made of none effect. This is the destruction which wasteth at the noon-day of our enlightened times.[*]

'The Holy Scriptures contain, besides the foundation of our salvation, many other precious materials. We should not consider the Bible as a mere collection of passages and examples, nor as separate remains of antiquity, but as one whole of the divine economy with the human race in a system which begins with the beginning and terminates with the end of all things. Although every Biblical book is in itself complete, though every Biblical author has his own style, there breathes nevertheless one spirit in all, and one idea penetrates them all. It becomes us to consider nothing as useless, because one casts constantly a light on the other.

'The experience of our days proves the evil consequences of considering only parts of the Scriptures. Either there arises a false outcry of salvation[*] and grace, which is the case among the Moravians, who constantly dwell upon the articles of passion[†], or an over-statement of the natural light, so as to reduce the Scriptures within the limits of reason.

'1. Reason is a noble, excellent, and invaluable power, wherewith man perceives divine and natural things within and without himself.

'2. But reason is miserably corrupted, and not only extremely ignorant, but also subject to doubt and error.

'3. But man retains, in spite of this corruption, a great preference over other animals; he is not a horse or a mule, but a man who can understand what is offered to him.

'4. Many things which reason understands were also known to the heathen[‡].

'5. Reason is an organ of truth.

'The Confession of Augsburg is, in comparison with other productions of that obscure age, something great: the other symbolical books also have so much internal value, that they should be studied even if they had not so great an historical importance. But confessions of faith should never be made a barrier against a further progress in the knowledge of truth: those divines who do this might command the sun to stand still in a summer's morning at four o'clock because there is light enough.

'As man consists of body and soul, so also the divine institutions have body and soul; let us take care not to mistake the glass for the spirit which it contains, nor the scabbard for the sword. The external events and the prophecies form the bones of the canonical books, but their spiritual doctrine is the muscles. The body cannot be without bones, nor the Holy Scriptures without external events.

'The book Sirach and the Wisdom of Solomon are destitute of those external events, and are considered nevertheless to be canonical by such as find pleasure in the spiritual only. But if we only consider our internal spiritual experience, without directing the attention to the manifold or solid wonders of God in the whole world and his church, we may easily fall into scepticism, therefore it is good not to be exclusively occupied with such matters, books, and exercises, which belong to the central point of the Gospel, because we become in this manner too delicate. The external coverings are not in vain; it is as with the sweet pea, which becomes by far more perfect, especially for seed, if we leave it in the pod. The word of God is always delicious and good; but on account of the necessary human explanation it causes sometimes an over-satiety.

'The antients had an unscriptural opinion that all the condemned should be saved by the united intercession of all the saved, but this could not be termed the going into eternal damnation. It is a hard saying, 'until thou have paid the uttermost farthing;' but this cannot mean an absolute eternity, otherwise it could not be said until.

'It is questionable whether the sum of sins committed by the righteous will not be greater than the sum of all sins committed by the unrighteous, because the former sin in a more subtle manner than the latter.

'If we knew how highly the unhappy departed spirits value their temporal life, and now experience so bitter disappointment, we should not fear spectres which perhaps are by far more afraid of the living than we of them. It is best not to notice them, not to be presumptuous, not to interfere with, nor to seek for them, but just to go on as if they were not.

'The apparitions of deceased persons have probably their fixed period, after which they cease; probably they continue until all the ligaments between soul and body are entirely dissolved. It is probably as with a fortress, if we are compelled to quit it we must pass many gates and walls. For souls which are sunk into impurity, it is especially difficult to be disentangled from the bonds of matter; from the expression in the Revelations, chap. xviii. v. 2, "Babylon is become the habitation of devils, and the hold of every foul spirit, and the cage of every unclean and hateful bird," we perceive a distinction between those unclean spirits which were once human, and the devils.'

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[*] Bengel (alluding to Ps. xci. 6.) means to say that the usual pulpit display has a bad effect.

[*] *i. e.* The talking of those who think to save and to be saved by saying Lord, Lord.

[†] *i. e.* The doctrine of salvation by the sufferings of Christ.

[‡] It means that people even without revelation were elevated high above brutes.

In the year 1742 Bengel was induced by the councillor of state, J. J. Mosser, to express publicly his opinion concerning the Moravians. He stated that they behaved as if the word of God went out from them alone, and as if the kingdom of Heaven was their exclusive right.

To the question why we should pray especially for princes, he answered, 'because God wills that all should come to the knowledge of the truth, and since the great in this world cannot be reached by doctrine, this defect must be supplied by the prayers of the faithful.'

Once when some visitors were pleased to observe how Bengel's doves came to the window to eat from his hand, he said, 'You see that it is possible to serve merely by faith, so it is also with the worship of God. If one has credit among men, the customers increase. So it is also with God—if He gets credit as the hearer of prayer all flesh turns to him. If I desire to know a man, I should like to see how he converses in his closet with his God. It is certain that we cannot buy God's favour for money; but because our Mammon is always in some degree unrighteous, I give especial alms when any of my family are sick.'

'Why is the discipline of the Calvinistic Church so despotic?' 'Because men are such as they describe their God, and they have, according to their doctrine of predestination, a despotic God.'

Bengel declared the Latin work of Spinoza on human servitude to be a most beautiful book, because it proves that in man one passion follows after another, so that he is without liberty, like clock-work. This is true as long as the man is without grace, but grace gives liberty, and then men should immediately make use of their free agency.

BENGER, MISS ELIZABETH OGILVY, was born at the city of Wells in 1778. She was an only child, and her father, who was a purser in the navy, dying abroad in 1796, her mother was left with very slender means. Miss Benger's early life was consequently passed amidst many privations, one of the greatest of which was her inability to gratify her ardent thirst of knowledge and love of books. At this period, as she herself used to relate, it was her common practice to plant herself at the window of the only bookseller's shop in the little town which she then inhabited, to read the open pages of the publications there displayed, and to return again, day after day, to examine whether, by good fortune, a leaf of them might be turned over. From a very early period she aspired to literary distinction, and in her twelfth year her mother was prevailed upon to let her attend a boys' school for the purpose of studying Latin. At thirteen she wrote a poem entitled 'The Female Geniad,' which was published; and though containing, as might be supposed, many imperfections, it exhibited the dawnings of genius.

In 1802, in order to gratify her daughter's earnest wish, Mrs. Benger came to reside in London; and a lady who had previously known Miss Benger, and estimated her as she deserved, introduced her to a circle of friends which included Mrs. Barbauld, Mrs. Joanna Baillie, Mrs. Elizabeth Hamilton, Dr. Aikin, Dr. Gregory, and others. Miss Aikin was amongst the number of her warmest friends; and it is from a short account of Miss Benger's life by this lady that the information contained in the present notice is obtained. The young and eager girl, who at one period derived her literary gratifications from the shop-window of a country bookseller, was often enabled, says Miss Aikin, to assemble round her humble tea-table names whose celebrity would have attracted attention in the proudest saloons of the metropolis.

Miss Benger's first literary efforts were directed to the drama, but in this department she did not prove successful, and she soon abandoned it. She next wrote a poem on the 'Abolition of the Slave Trade,' which, with two others, was published in 4to., with engravings. She also published two novels, to which she did not attach her name. None of the above works can be considered as very perfect compositions. It was as a biographical writer that she obtained her first decided success, and her reputation became fully established by her historical biographies. At the period of her death, which occurred after a short illness, on the 9th of January, 1827, Miss Benger was engaged in writing 'Memoirs of Henry IV. of France.' In private life she was sincerely beloved and esteemed for the warmth of her heart and disinterested character.

The following is a list of Miss Benger's biographical works:—1. 'Memoirs of Mrs. Elizabeth Hamilton,' 2 vols. small 8vo. 2. 'Memoirs of John Tobin,' 1 vol. small 8vo. 3. 'Memoirs of Klopstock and his Friends,' prefixed to a translation of their Letters from the German. 4. 'Memoirs of Anne Boleyn,' 2 vols. small 8vo. 5. 'Memoirs of Mary, Queen of Scots,' 2 vols. small 8vo. 6. 'Memoirs of Elizabeth Stuart, Queen of Bohemia,' 2 vols. small 8vo. A complete edition of Miss Benger's historical works has been published in 5 vols. small 8vo.

BENGUELA, a district on the west coast of Africa, otherwise written Buenguela, Banquella, Bankella, and Bankhella. It is bounded on the north by Angola, from which it is divided by the river Coanza, in 9° 20′ S. lat. Some accounts, however, carry it no farther north than to the river Longa, in 11° S. lat., and others no farther than to the river Catumbela, which falls into the sea a little to the south of the 12th parallel of latitude. It is commonly considered as extending southward as far as Cape Negro, according to Captain Owen, in 15 40′ 7″ S. lat., 11° 53′ 3″ E. long. The district immediately to the south of it is called Mataman. To the east the old accounts place the province of Rimba, and the country of the Jagga (or Giagga) Kassangi, from which it is separated by the river Cuneni. Some authorities, however, extend the eastern limits of the southern portion of Benguela across a range of lofty mountains farther in the interior, called the Mountains of Cold and of Snow (Cavazzi's terms are Monti Freddi and Monti Nevosi). This is said to be the same range which, to the east of Angola, is called the Crystal Mountains, and still farther to the north the Mountains of Silver.

Benguela is stated to have been formerly one of the seventeen provinces of Angola, or rather of the great kingdom called by the natives Congo, of which Angola, Congo Proper, and Loango were also parts. Benguela, however, had effected its independence before the arrival of the Portuguese on those coasts towards the end of the fifteenth century. Since their conquest of the whole country, Benguela has again been reduced to the rank of a province, subject to the governor-general, who resides at St. Paul de Loando, the capital of Angola. There is, however, a resident subgovernor at S. Felipe, the capital of Benguela.

Benguela was visited in 1589 by the English navigator Andrew Battel, whose curious relation may be found in Purchas; in 1667 by the missionaries Angelo and Carli (a translation of whose voyage is also in Purchas, and in all the common collections); in 1682 by Father Merolla (also in Purchas); and in 1688 by James Barbot. In modern times the coast has been surveyed by Captain W. F. W. Owen and Captain Vidal.

The interior of the country is said to be very mountainous. On the coast immediately to the south of the mouth of the Coanza is a considerable promontory called Cape Ledo. About a degree farther to the south is the native capital, now called Old Benguela. The modern capital, called S. Felipe, or St. Philip de Benguela, the latitude of which, according to Mr. Bowdich's map, afterwards referred to, is nearly 12° 10′ S., stands at the bottom of a somewhat deep bay, called the Bahia das Vaccas, or Bay of Cows, and also the Bahia de Torre, or Tower Bay, from a rock shaped like a tower. According to Battel, this bay affords good and secure anchorage.

Captain Vidal, having passed Cape Negro, the coast immediately to the north of which he describes as less desolate than that farther south, although still poor, 'the few trees being so stunted in their growth as more to resemble bushes,' arrived at the town of Benguela on the 30th of November, 1825. It is, he says, 'situated in an open bay, formed to the south-west by a projecting point of cliffs, above which is Mount Sombreiro, known more generally among the English by the name of St. Philip's Cap, on account of its peculiar form.' The governor, Senhor João Victor, spoke English remarkably well, having received his education at Reading in Berkshire; but as he had come from Europe only a few days before, he could give them very little information. He said that Benguela was then rapidly declining, but that some years back it had possessed a greater trade than St. Paul de Loando, exporting annually about 20,000 slaves. The slaves, it seems, had of late become scarcer, in consequence of the cessation of hostilities among the tribes in the interior. According to the governor, 'the natives in the interior will not permit the Portuguese, *or any other people with straight hair*, to enter their territory, and a journey of twenty days is the utmost they (the Portuguese) have ever been known to accomplish; but through the medium of a large and powerful tribe whose possessions lie at that distance, they sometimes obtain information respecting their settlements on the east coast.' The buildings in the town of Benguela were found to be of half-baked bricks, with mud for cement, the whole coated by a thick plaster of shell lime. They are never repaired, but when a house falls down a new one is built. The site of the town is a marsh, full of stagnant pools, and the place is considered so unhealthy, that it goes by the name of Hell among the Portuguese, who say that none of their countrywomen have ever been known to live in it above a few months. The population is about three thousand, most of whom are free blacks or slaves. The chief defence of the place is a large fort, now fast going to decay. It is built principally of earth, and mounted a large number of honeycombed guns; but the garrison, Captain Vidal says, was quite insufficient for its occupation. They saw no sheep, but goats and bullocks, the latter a very small species, in great abundance. The elephants, they were told, had now become scarce, but there were still plenty of lions and tigers; and a small river near the town contained numerous hippopotami and alligators, which, when the water got dry, were sometimes wont to invade the town in a body, and give battle to the inhabitants. Captain Vidal left Benguela on the 5th of December. Captain Owen also touched at the place on the following day, but remained only a few hours. He says, 'The only chart that the governor possessed of the harbour, or neighbouring coast, was an old parchment manuscript, on a very small scale. It did not appear that the Portuguese had any settlement to the southward of Benguela, while the neighbourhood of Victoria and Theresa rivers, which we call Catamaran Point, was only known to the governor as the *salinas*, whence they procure salt. The Portuguese sailors have a great dread of Port Negro, which they always avoid; and it is reported that many vessels are annually wrecked in its vicinity, the crews, when saved, generally walking to Benguela, as the nearest place of refuge.' They saw here about a hundred negroes of both sexes chained together in pairs, who had just arrived from a great distance in the interior, to be exported for slaves. They were worn to skeletons with want, fatigue, and disease.

In the map of part of the west coast of Africa, prefixed to Mr. T. E. Bowdich's *Account of the Discoveries of the Portuguese in the Interior of Angola and Mozambique* (8vo. Lon. 1824), which was constructed in 1790 by a Portuguese military officer, partly from his own observations, and partly from the communications of the commandants of the Portuguese fortresses in the interior, the rivers that fall into the sea or flow towards it, between the Coanza and Cape Negro, are the following, in the order in which they occur from north to south; the Longa (immediately above Old Benguela), the Cuvo, the Gunza (at the mouth of which, on the left bank, stands Fort Novo Redondo), the Quicombo, the Egito, the Inhandanha, the Catumbela, the Maribombo (of which a southern branch is called the Bandeco), at S. Felipe de Benguela, the Copororo (into which the Quianhecua falls from the south), the S. Ioão de Quiana (which appears to fall not into the sea, but into a lake near the coast), the Dongue, the Cangala, the Senhebari, the Monaia, all of which also, as well as three succeeding rivers to which no names are given, lose themselves in lakes near the sea, the Rio dos Mortes, into which the Cobal falls from the south-east, and finally a large river, to which no name is given, at Cape Negro. The Cunene, or Cuneni, in the interior, of which only a very small portion is delineated, is represented as flowing towards the south, after having been joined about the 15th parallel of latitude, and between the 17th and 18th degrees of longitude (east from Greenwich) by five or six other streams from the east and north-east. In this map, between the rivers Copororo and dos Mortes, are placed in succession the savage tribes of the Mocoandos, the Mocorocas and the Mucoanhocas; and to the east of these is the territory of the Quilengues. To the south of the Rio dos Mortes are the wandering tribes of the Cobaes, to the east of whom, divided from them by the Rio Cobal, is the territory of Donjau. To the south of Cape Negro are the Mucuambundos, with the country called Hila, or Auyla, to the east of them. From between the 16th and 17th to near the 19th degree of latitude, the country on the sea coast is described as wild and desert. Below that it is inhabited by the Mucuixes, to the east of whom are Hecabona, and the territory of Oimba.

In the body of Mr. Bowdich's work (pp. 25—64) a long account is given of an expedition of discovery into the interior of Benguela conducted in 1785 by Gregorio Mendes, at the head of a party of about thirty Europeans and one thousand natives. The account is abstracted from the manuscript journal of Mendes, which, along with other papers of Baron Mossamedes, the then captain-general of Angola, was put into the hands of Mr. Bowdich by the baron's son, the Count da Lapa. The party, setting out from S. Felipe de Benguela on the 30th of September, proceeded along the coast until they reached the Rio dos Mortes. They appear to have then taken their way along the bank of that river, and to have penetrated through the interior by a semicircular sweep, till they again reached the sea coast at the mouth of the Copororo. The map, however, on which Mr. Bowdich has traced their route exhibits but a very imperfect agreement with his description of the journey. They found the soil on the banks of the Copororo capable of excellent cultivation, and the chiefs to whom the land belonged in possession of large quantities of black cattle, sheep, and goods, which they refused to sell, but presented very freely to the commander of the expedition, together with some fine maize and celery. To the south of this the country became very hilly. Occasionally some tolerable water was found, but in general it was very brackish. Lakes both of salt and of fresh water frequently occurred. They also came to some large forests. Inhabitants were found as far as the expedition proceeded, and their dialects, though differing from the Bunda spoken in Angola, were all intelligible to those who understood that language. The expedition terminated on the 29th of December.

Mr. Bowdich states that, according to an unpublished memoir of M. de Souzas, who was governor-general of Angola till the year 1780, the interior of Benguela is preferable to that of Angola both for commerce and salubrity. Battel speaks of many mines of silver, and also of other metals, as existing in Benguela. There are likewise, according to Cavazzi, mines of rock-salt, but of inferior quality to that found in Angola. The vegetable productions appear to be the same with those of the neighbouring countries. Merolla particularly mentions the numerous date-trees as the most distinguishing ornament of the coast.

The old accounts describe the climate of Benguela as extremely unhealthy, at least for Europeans, who on their first arrival are stated to become generally unwell. The missionaries Angelo and Carli, from a notion that there was something in the air which poisoned not only the water, but also the fruits of the earth, and even the flesh of animals, declined the invitation of the governor of S. Felipe to dine with him, till he had given them the strongest assurances that neither the meat nor drink set before them should be the produce of the country. The miserable appearance of the whites whom they saw, also determined them to refuse to leave any of their companions with the governor, who had no priest in his establishment, and was very anxious to have one. When Merolla, however, visited the place fifteen years afterwards, he found a vicar-general there; but he was the only Christian minister in the whole country. Benguela was then made use of by the Portuguese as a place of banishment for malefactors.

According to Cavazzi (see a translation of his account in Labat's *Ethiopie Occidentale*), there had before his time (the middle of the seventeenth century) been numerous herds of European cattle and sheep in Benguela, but they had then almost all perished, partly from the badness of the water, partly in consequence of the devastations of the Giagas, a race of fierce savages, by whom the country had been frequently invaded. He says that it still abounded in elephants of immense size, which were sometimes to be seen ranging in troops of a hundred or two; and that there were also many lions and tigers, crocodiles and serpents. The people he describes, although some of them had been formerly christianized, as having all become most obstinate pagans. Battel says that the natives call themselves Endal Ambondos (there is a race called Ambondos in Angola), and he describes their habits and manner of life as in the highest degree barbarous and brutal. He also represents them as a very cowardly race.

BENI is the status constructus of the plural of the Arabic word *Ebn* or *Ibn*, 'a son.' It occurs in eastern geography as a component part of many names of families or tribes, as *Beni Temîm*, 'the sons of Temîm,' *i.e.* the tribe of Temîm, or the Temîmides; *Beni Omayyah*, 'the sons of Omayyah,' *i.e.* the family known in history under the current name of the Ommiades; *Tiah Beni Israel*, 'the desert of the sons of Israel,' the name of a dreary wilderness towards the north of Mount Sinai.

BENI-HASSAN-EL-QADYM, or Old Beni-Hassan, a very large village of Egypt, near the east bank of the Nile, in 27° 53′ N. lat., and 30° 55′ E. long. It is called 'Old' to distinguish it from another village, a little to the south of it and nearer to the Nile, which appears to have been founded about sixty years since, when the inhabitants of Beni-Hassan-el-Qadym were driven, by the encroachment of the sands upon the grounds around the village, to seek a more eligible site. But although abandoned and desolate, the village is not ruined. M. Jomard, who contributed the description of this place to the great work on Egypt, found a large proportion of the houses entire, and to appearance new. The place is of no importance but as marking the site of the catacombs in the neighbourhood, which are among the finest and most interesting in Egypt. The most important of these catacombs are in a mountain a little to the north of Beni-Hassan-el-Qadym; and near them, in what was once the bed of a steep torrent, is a large natural cave, which Hamilton conjectures may have given to the spot its Greek name of Sepos Artemidos, or Cave of Artemis; for he will not allow with M. de Pauw that the name was applied to any of these artificial excavations, the architecture and general disposition of which too much resemble those of other Egyptian grottoes, which were confessedly appropriated to the use of the dead, for any doubt to be entertained of their character. This mountain is composed of calcareous stone, containing nummulites, and the chain to which it belongs is from 200 to 300 feet in height; but in front of the principal chain there is a lower one formed by the debris of the rock, shells, and sand. In this mountain are the excavations, about thirty in number, all at the same height in the rock, and all having their entrances on the same platform. According to Mr. William Hamilton, these grottoes must have been the cemeteries of the principal families of the name of Hermopolis, which town is directly opposite to them on the other side of the river. There are still remains of stone roads, which lead from the river's side in straight lines to the entrance of the principal grottoes.

Many of the grottoes are of considerable extent, consisting of one, two, or three apartments each; the largest of which is about seventy feet square, Hamilton says, but he is probably mistaken, as M. Jomard does not mention any so large, and Mr. Legh seems to describe the largest as not exceeding sixty feet in length by forty in breadth. In front of the principal grottoes are small porticoes of four or more columns, and other columns support the roof, that is, have been left there in the excavation of the rock. The roofs are for the most part arched, but in none does any instance of a *constructed* arch occur. The columns are, in general, of the same character with those of the great portico at Ashmounein, or Hermopolis Magna, but the proportions are not so massive, being from twelve to eighteen feet in height, but never more than three feet in diameter at the base. They appear to represent four large palm branches tied together near the small ends, and set upright on the thicker ends, with traces of other bands at equal distances all the way up. This contrivance, which is still actually employed by the natives in the construction of reed-huts, appears to have suggested the first idea of this kind of column, which is in such frequent use in various parts of Egypt, as the column with what is called the bell-capital is evidently in imitation of the trunk of the palm-tree with its spreading branches. Columns fashioned in the manner of those at Beni-Hassan have necessarily a fluted appearance, and M. Jomard says that they are precisely similar to those which are found in the most early Greek temples, and analogous to the Grecian-Doric, thus enabling us to trace an early style of European architecture to the banks of the Nile. In the catacombs, the columns are usually covered with painted or sculptured hieroglyphics, and this circumstance, while it makes an unimportant difference, sufficiently attests that the pillars in question were really and properly Egyptian.

The interior distribution of the excavations is very various. The walls of all of them, like the columns, have been covered with paintings, some of which are in perfect preservation, and with the colours as vivid as if recently applied, while others have been defaced through the fanaticism or zeal of the Moslems, and probably of the early Christians. The interior of one of the principal grottoes has been entirely covered with a thin coat of hard and durable plaster, painted so as to resemble a variegated marble. Mr. Hamilton has given a very elaborate account of these paintings; and from his descriptions, and those of M. Jomard, it appears that they mostly represent scenes of familiar life, and afford a most interesting view of the habits and occupations of the antient Egyptians.

It is impossible, within our limits, to give an adequate idea of the endless variety of domestic and rural occupations which are pourtrayed on these walls. We there see the processes which were followed in the culture of corn, hemp, and flax, and in the manufacture of arms and ropes; we have views of boats navigating the Nile; and scenes of fishing, hunting, dancing, wrestling, sham-fighting, &c. It does not appear that horses were employed in the labours of agriculture in Egypt; perhaps it was considered that they were too expensive, or that the light soil did not require them. Some of the fishing scenes are very curious: besides the common mode of fishing with the drag net, a superior personage is in some of them represented as throwing his spear at the fish in the stream. Several hippopotami are seen walking at the bottom of the river, or with their heads above water; while servants are paddling on their floats of rushes among the sedges and reeds to drive these animals away, in which they are assisted by water-dogs. The fish are delineated with great minuteness.

Among the most interesting of the representations is a scene of antelope hunting, where the animals are pursued by hunters armed with spears, and leading greyhounds in leashes, a scene precisely similar to that which may still be witnessed among the Arabs in the neighbouring deserts. Dancing is frequently represented; sometimes with men and women together, but generally separate. The movements and attitudes of the men are in general very elegant: some of them exhibit feats of activity apart, others dance together, and one man stands upon his head. The dances of the women are much more extraordinary; their attitudes being quite as strained and unnatural as those of the modern *almas*. In the gymnastic exercises, the amazing variety of postures and the expressive manner in which they are drawn are equally creditable to the expertness of the Egyptians in this sort of amusement, and to the ingenuity of the artist. In one of the grottoes there are no less than 180 single combats represented, each perfectly distinct from any other, and all executed with equal spirit. Hamilton says, he was surprised to find no professors of the art of boxing among them. One curious scene exhibits a man in the act of being punished with the bastinado; he lies on his belly, and one man holds his legs and another his arms, while a third inflicts the punishment; the affair is altogether such as may now be seen every day at Cairo. It is remarkable that the representations are almost entirely of a civil character, notwithstanding the solemn purposes to which the excavations appear to have been consecrated. The natives as usual assign the origin of these works to the genii. Norden strangely enough attributed them to 'holy hermits, who made their abodes there:' but although they may in later times have been occupied by recluses, it is evident that they were in the first instance designed as catacombs, for the remains of mummies have been found, even in the great chamber of the principal grotto, and all the grottoes have in one or other of the apartments mummy-pits, or perpendicular graves near the wall, and holes have been perforated in the walls to serve as ring-bolts for the convenience of letting down the bodies. (Hamilton's *Ægyptiaca; Description de l'Egypte*, vol. iv. 8vo.; Legh's *Narrative of a Journey in Egypt*, p. 86, 87, &c.; Rosellini's *Plates*, &c.)

BENIN, BIGHT OF, in the Gulf of Guinea, is contained between Cape Formosa to the east, and Cape St. Paul's to the west, the distance between which is 300 geographical miles in an east-by-south direction, while that along the coast is nearly 350 miles. It is, with very few exceptions, one continuous line of low, marshy, sandy shore, intersected by numerous rivers and æstuaries, more especially towards Cape Formosa, where they form alluvial islands, which are part of the delta of the Quorra. The swampy character of the ground extends in some places upwards of fifty miles inland from the beach, and is thickly wooded in most parts with mangroves, and other aquatic plants; in the wet season large tracts are inundated. The principal towns along the coast are Quitta (Danish fort), Great and Little Popoe, Whydah (English, French, and Portuguese factories), Porto Novo, the sea-port of Ardrah, Badagry, and Lagos. The principal rivers which empty themselves into this bight are the Lagos, Benin, Escardos, Forcados, Ramos, Dodo, and Sengana, all of which, except the Lagos, communicate with each other and with the Quorra. Of these, the only rivers accessible to shipping are the Benin, Escardos, and Forcados. The whole coast is shallow, but shoals gradually and regularly, so that a vessel may run along it, keeping in soundings of forty to fifty feet, with stiff muddy bottom, at the distance of about four miles from the beach. The current always sets along the shore to the eastward, at the rate of half to 1½ mile an hour. The prevailing winds are from the westward; but this coast is subject to violent tornados, which always blow from the north-east, and are accompanied by heavy cold rains, which sometimes depress the thermometer 10° or 15°. There is always a heavy surf rolling on the beach, which makes landing every where dangerous, even in light canoes. The dry season commences in this bight in August, and continues till January; the land and sea-breezes are stronger and more regular here, and in the Bight of Biaffra, than on any other part of this coast, and they have no harmattan winds. In the months of February and March the tornados are most frequent and violent, and in the alternations of calms and light winds, the thermometer will frequently rise to 90°, sometimes to 100°. In the rainy season, during temporary cessations, the density of the vapours which rise in the atmosphere is most oppressive.

The chief articles of trade at the towns on the coast, as well as up the rivers, are palm-oil and ivory; little gold is to be seen on this coast, and the use of it is almost unknown at Whydah. The necessaries of life may be procured at all the larger towns cheap and in abundance; of fruits and vegetables there is great variety and plenty.

This coast was first visited by the Portuguese about the year 1485, and afterwards by the Dutch; but the first account of the English trading here was in 1553, when Captain Windham procured a cargo of Guinea pepper in the Benin River.

BENIN RIVER, formerly called by the Portuguese Rio Formoso, empties itself into the Bight of Benin, about 115 miles to the N.N.W. of Cape Formosa: the latitude of the N.W. point of entrance is in 5° 46′ N., and 5 3½′ E. long. At its mouth the river is two miles wide, and has across it a bar of mud, clay, and sand, extending from four to five miles off, on which there is not more than twelve or thirteen feet at low water spring-tides. A short distance from the sea its width diminishes to half a mile, and at New Town, eighteen miles up, it is little more than 500 yards across. The depth of water does not exceed twenty-four feet in any part. At New Town, which lies on the southern bank, and is the port of Waree, two branches strike off nearly equal in magnitude to the main trunk; one runs to the N.E., called Gato Creek, to the town of that name, which is the port of Benin, and the other to the S.E. with the River Forcados or Warree, while the main stream continues its direction to the E.N.E., and according to the report of the natives, at about fifty miles up, is not navigable for vessels of more than fifty tons. There are also smaller creeks branching off before reaching these larger ones, as Calabar Creeks, just within the entrance point to the right, and Lago and Waceow Creeks, higher up on the opposite shore; but these are only navigable for small boats.

On the southern bank of the river, which belongs to the kingdom of Warree, the first town, called Salt Town, lies just within the mouth; the second, six miles farther up, is called Bobee or Lobou, and the next New Town. Opposite New Town, on the eastern point of the Warree Creek, is Reggio Town. Both shores of the main branch, as well as the creeks as far as Gato on one side, and Warree on the other (with the exception of a few spots), consist of impenetrable morasses covered with mangrove-trees, and generally inundated, even during the dry season, as the banks are very low. Formerly several European nations, as the Portuguese, Dutch, English, and French, had establishments on this river, chiefly at Gato; but trade has so much decreased, that they have been all abandoned, and merchant-vessels now trading here merely hire a house for bartering in as long as may be necessary. The slave-trade, which is carried on to a great extent in all the rivers of this coast, appears to be the cause of the decline of legitimate commerce. This river, like all the others on the coast, is pestilentially unhealthy, and the mortality that invariably occurs in the crews of vessels trading here is appalling; the disease is a malignant remittent fever, which generally proves fatal within the third day after the attack. The chief articles procured in this river are palm-oil and ivory; pod-pepper (Cayenne) was also once an object of commerce, but is now more plentifully procured from the West Indies. In exchange the natives take cloth (scarlet particularly), beads, guns, and gunpowder, hardware, spirits, &c. The tide flows six hours at full and change, and rises five or six feet: during the rainy season the ebb is very rapid, and frequently washes away portions of the river banks.

BENJAMIN, Tribe of. [See ISRAEL, Tribes of.]

BENJAMIN of Tudela, a Jewish rabbi, and author of the *Itinerary*, was the son of Jonas of Tudela, and was born in the kingdom of Navarre. He was the first European traveller who went far eastward. He penetrated from Constantinople through Alexandria in Egypt and Persia, to the frontiers of Tzin, now China. Saxius, who follows Wolfius's *Bibliotheca Hebraica*, places the date of Rabbi Benjamin's travels about 1160. They ended in the year in which he died, A.D. 1173. (Gantz, *Tsemach David*, fol. 39, quoted by Baratier, *Diss. I. sur R. Benj.*)

Casimir Oudin (*Comment. de Script. Eccles.* ed. Lips. 1722, tom. ii. col. 1521) probably gives the true character which Rabbi Benjamin bore among his countrymen, when he says that he was a man of great sagacity and judgment, well skilled in the sacred laws, and that his observations and accounts have been generally found to be exact upon examination, he being remarkable for his love of truth. The work is no doubt a curiosity, as the production of a Jew in the twelfth century: but considered in itself, the *Itinerary* has only a small portion of real worth: for, in addition to the fabulous narrations which lead the reader to suspect him when he speaks the truth, there are many errors, omissions, and mistakes. Benjamin's principal view seems to have been to represent the number and state of his brethren in different parts of the world, and accordingly he merely mentions the names of many places to which we are to suppose he travelled, and makes no remark about them, except perhaps a brief notice of the Jews found there. When he relates anything farther, it is often trifling or erroneous.

Wolfius says, the *Itinerary* was first printed at Constantinople, in 8vo. 1543: at Ferrara in 1556, and a third edition at Fribourg in 1583. It was translated from the Hebrew into Latin by Benedictus Arias Montanus, and printed by Plantin at Antwerp, 8vo. 1575. Constantine L'Empereur likewise published it, with a Latin version, and a preliminary dissertation and large notes, printed by Elzevir, 12mo. 1633; in which year Elzevir also printed the Hebrew text alone in a very small size. It was translated into Dutch by Jan Barn, 16mo. Amst. 1666. J. P. Baratier translated it into French, 1734, 2 vols. 8vo· another edition in French, translated from the Latin of Arias Montanus, was published in Bergeron's *Voyages faits principalement en Asie dans le* xii. xiii. xiv. *et* xv. *siècles*, 4to. à la Haye, 1735; and a third has been recently published in a volume entitled *Voyages autour du Monde en Tartarie et en Chine*, 8vo. Par., 1830. An English translation, with notes, was published in 8vo. Lond. 1783, by the Rev. B. Gerrans, made from the Hebrew edition published by Constantine L'Empereur at Leyden in 1633. (See Wolfius's *Biblioth. Hebraica*, tom. i. p. 217; *Monthly Review*, vol. lxx. p. 347; Chalmers's *Biog. Dict.* vol. iv. p. 419.)

BENNINGTON, a post town of the United States, and capital of a county of the same name in the state of Vermont: distant 103 miles S. by W. from Montpelier, the capital of the state, and 338 miles N.N.W. from Washington. Bennington is the oldest town in Vermont, having been chartered in 1749, by Benning Wentworth, governor of New Hampshire. A battle was fought here in August, 1777, between 1600 American militia under General Stark, and a British detachment under Colonel Baume, who had been despatched by General Burgoyne to seize a depôt in New Hampshire Grants. The British were defeated; and this affair is considered to have largely contributed to the surrender of Burgoyne's army, which followed soon after. Bennington is situated in a good farming district, on the borders of New York, and is a place of some trade and manufacture.

It has several handsome buildings, and Mount Anthony in the town contains a cave, in which there are many beautiful stalactites. The population of the town was 3419, in 1830. (*View of the United States*, 1833: Hinton's *History and Topography of the United States; Companion to American Almanacs, &c.*)

BENT GRASS, a species of Agrostis, creeping and rooting by its bent and wiry stems, whence it becomes exceedingly difficult to eradicate from any soil of which it has taken possession.

BENTHAM, JAMES, author of the 'History of the Church of Ely,' was born in the year 1708. He was the fourth son of the Rev. Samuel Bentham, vicar of Witchford near Ely, and was descended from a very antient family in Yorkshire, which had produced an uninterrupted succession of clergymen from the time of Queen Elizabeth. Having received the rudiments of classical learning in the grammar-school of Ely, he was admitted of Trinity College, Cambridge, in 1727, and took the degree of B.A. in 1730 and M.A. in 1738. His first preferment was the vicarage of Stapleford in Cambridgeshire, in 1733, which he resigned in 1736, on being made a minor canon in the church of Ely. In 1767 he was presented to the vicarage of Wymondham in Norfolk, which he resigned in the year following for the rectory of Feltwell St. Nicholas, in the same county. This he resigned in 1774 for the rectory of Northwold, which he exchanged in 1779 for a prebendal stall at Ely. In 1783 he was presented to the rectory of Bow-brick-hill in Buckinghamshire, by the Rev. Edward Guellaume.

From his first connexion with the church of Ely, Mr. Bentham appears to have directed his attention to the study of church architecture, the varieties of which, from the earliest period to the time of the Reformation, were constantly within his view. Having previously examined with great attention every historical monument and authority which could throw light upon his subject, and after he had circulated, in 1756, a catalogue of the principal members of the church (abbesses, abbots, bishops, priors, deans, prebendaries, and archdeacons), in order to collect further information concerning them, he published 'The History and Antiquities of the Conventual and Cathedral Church of Ely, from the foundation of the Monastery, A.D. 673, to the year 1771, illustrated with copper-plates,' 4to. Cambridge, 1771. He received great assistance in the compilation of it from his brother, Dr. Bentham, and from the Rev. William Cole of Milton. By a strange mistake, his remarks on Saxon, Norman, and Gothic architecture were long attributed to the celebrated Mr. Gray, merely because Mr. Bentham had mentioned his name among those to whom he was indebted for communications. The 'History of the Church of Ely' was reprinted at Norwich in 4to. 1812, by Mr. William Stevenson; who in 1817 published a 'Supplement' to the first edition in the same size.

In 1769, when the dean and chapter of Ely had determined upon the general repair of their church, and the judicious removal of the choir from the lantern to the presbytery at the east end, Mr. Bentham was requested to superintend that concern as clerk of the works. He was yet intent upon his favourite subject, and to the close of life continued to make collections for the illustration of the antient architecture of this kingdom, which, however, his various avocations prevented him from arranging.

He also contributed to promote works of general utility in his neighbourhood, and rendered great assistance in the plans suggested for the improvement of the fens by draining, and the practicability of increasing the intercourse with the neighbouring counties by means of turnpike roads, a measure till then unattempted. A letter on the discovery of the bones of the original benefactors to the monastery of Ely, and some Roman coins found near Littleport, printed in the 'Archæologia' of the Society of Antiquaries, vol. ii. p. 364; with one or two pamphlets on local improvements in Cambridgeshire, were Mr. Bentham's other publications. He died at his prebendal house in the college at Ely, where he had resided for the greater part of his life, on November 17th, 1794, aged eighty-six.

(See Cole's *Athenæ Cantabrigienses*, M.S. Brit. Mus., vol. B.; Nichols's *Lit. Anecd.* vol. iii. p. 484; Chalmers's *Biogr. Dict.* vol. iv. p. 480; Stevenson's *Supplement* to Bentham's *Hist. of Ely*, pp. 1-20.)

BENTHAM, JEREMY, was born at the residence of his father, Mr. Jeremiah Bentham, an eminent solicitor, adjacent to Aldgate Church in London, on the 15th of February, 1747-8. At eight years of age he entered Westminster School; and at thirteen he was admitted a member of Queen's College, Oxford, at both which places he is said to have been distinguished. The age at which he entered Oxford belongs more to the practice of former times than that of later years. At sixteen he took his degree of B.A., and at twenty that of M.A. When the time came for attaching his signature to the Thirty-nine Articles of the Church of England, what he suffered from scruples of conscience is thus related by himself:—

'Understanding that of such signature the effect and sole object was, the declaring after reflection, with solemnity and upon record, that the propositions therein contained were, in my opinion, every one of them true; what seemed to me a matter of duty was, to examine them in that view, in order to see whether that were really the case. The examination was unfortunate. In some of them, no meaning at all could I find: in others no meaning but one which, in my eyes, was but too plainly irreconcileable either to reason or to scripture. Communicating my distress to some of my fellow collegiates, I found them sharers in it. Upon inquiry, it was found that among the fellows of the college there was one, to whose office it belonged, among other things, to remove all such scruples. We repaired to him with fear and trembling. His answer was cold; and the substance of it was—that it was not for uninformed youths, such as we, to presume to set up our private judgments against a public one, formed by some of the holiest as well as best and wisest men that ever lived. . . . . . I signed: but by the view I found myself forced to take of the whole business, such an impression was made as will never depart from me but with life.'

At Oxford, Bentham was one of the class who attended the lectures of Blackstone on English law. His 'Fragment on Government' shows at how early an age he began to feel dissatisfied with the arguments of that writer. The following passage traces in his own words the course of his opinions:—

'Perhaps a short sketch of the wanderings of a raw but well-intentioned mind, in its researches after moral truth, may, on this occasion, be not unuseful; for the history of one mind is the history of many. The writings of the honest but prejudiced Earl of Clarendon, to whose integrity nothing was wanting, and to whose wisdom little but the fortune of living something later—and the contagion of a monkish atmosphere; these, and other concurrent causes, had listed my infant affections on the side of despotism. The genius of the place I dwelt in, the authority of the state, the voice of the church in her solemn offices; all these taught me to call Charles a martyr, and his opponents rebels. I saw innovation, where indeed innovation, but a glorious innovation, was, in their efforts to withstand him. I saw falsehood, where indeed falsehood was, in their disavowals of innovation. I saw selfishness, and an obedience to the call of passion, in the efforts of the oppressed to rescue themselves from oppression. I saw strong countenance lent in the sacred writings to monarchic government, and none to any other; I saw *passive obedience* deep stamped with the seal of the Christian virtues of humility and self-denial.

'Conversing with lawyers, I found them full of the virtues of their original contract, as a recipe of sovereign efficacy for reconciling the accidental necessity of resistance with the general duty of submission. This drug of theirs they administered to me to calm my scruples, but my unpractised stomach revolted against their opiate. I bid them open to me that page of history in which the solemnization of this important contract was recorded. They shrunk from this challenge; nor could they, when thus pressed, do otherwise than our author has done—confess the whole to be a fiction. This, methought, looked ill; it seemed to me the acknowledgment of a bad cause, the bringing a fiction to support it. "To prove fiction, indeed," said I, "there is need of fiction; but it is the characteristic of truth to need no proof but truth. Have you, then, really any such privilege as that of coining facts? You are spending argument to no purpose. Indulge yourselves in the licence of supposing that to be true which is not, and as well may you suppose that proposition itself to be true which you wish to prove, as that other whereby you hope to prove it." Thus continued I unsatisfying and unsatisfied, till I learnt to see that *utility* was the test and measure of all virtue, of loyalty as much as any; and that the obligation to minister to general happiness was an obligation paramount to and inclusive of every other. Having thus got the instruction I stood in need of, I sat down to make my profit of it. I bid adieu to the original contract; and I left it to those to amuse themselves with this rattle who could think they needed it.' (*Fragment on Government*, note p. 47, et seq.)

Bentham's prospects of success at the bar were extremely good, his father's practice and influence as a solicitor being considerable, and his own draughts of bills in equity being distinguished for their superior execution. In one of his pamphlets (*Indications respecting Lord Eldon*) he thus relates the circumstances which led to his retirement from the practice of his profession:—

'By the command of a father I entered into the profession, and, in the year 1772, or thereabouts, was called to the bar. Not long after, having drawn a bill in equity, I had to defend it against exceptions before a Master in Chancery. "We shall have to attend on such a day," said the solicitor to me, naming a day a week or so distant, "warrants for our attendance will be taken out for two intervening days; but it is not customary to attend before the third." What I learnt afterward was—that though no attendance more than *one* was ever bestowed, *three* were on every occasion regularly charged for; for each of the two falsely pretended attendances, the client being by the solicitor charged with a fee for himself, as also with a fee of 6*s*. 8*d*. paid by him to the master: the consequence was—that, for every attendance, the master, instead of 6*s*. 8*d*., received 1*l*.; and that, even if inclined, no solicitor durst omit taking out the three warrants instead of one, for fear of the not-to-be-hazarded displeasure of that subordinate judge and his superiors. True it is, the solicitor is not under any *obligation* thus to charge his client for work not done. He is, however, sure of *indemnity* in doing so: it is accordingly done of course. . . . . . These things, and others of the same complexion, in such immense abundance, determined me to quit the profession; and, as soon as I could obtain my father's permission, I did so: I found it more to my taste to endeavour, as I have been doing ever since, to put an end to them, than to profit by them.'

In 1776 appeared his first publication, entitled *A Fragment on Government*, from which an extract has already been given. This work, being anonymous, was ascribed to some of the most distinguished men of the day. Dr. Johnson attributed it to Mr. Dunning. In 1780 his *Introduction to the Principles of Morals and Legislation* was first printed; but it was not published till 1789.

He visited Paris in 1785, for the third time, and thence proceeded to Italy. From Leghorn he sailed for Smyrna, in a vessel, with the master of which he had formed an engagement before leaving England. After a stay of about three weeks at Smyrna he embarked on board a Turkish vessel for Constantinople, where he remained five or six weeks. From Constantinople Mr. Bentham made his way across Bulgaria, Wallachia, Moldavia, and through a part of Poland, to Crichoff in White Russia. At that place he stayed at his brother's, afterwards Sir Samuel Bentham, at that time lieutenant-colonel commandant of a battalion in the emperor's service, till November, 1787, when his brother, who was on an excursion to Cherson, being unexpectedly detained for the defence of the country against the apprehended invasion of the Capitan Pacha, he returned to England through Poland, Germany, and the United Provinces, arriving at Harwich in February, 1788.

In 1791 was published his *Panopticon, or the Inspection House*, a valuable work on prison-discipline, part of which consists of a series of letters, written in 1787, from Crichoff in White Russia, where also he wrote his letters on the usury laws.

In 1792 Mr. Bentham presented to Mr. Pitt a proposal formed on his Panopticon plan of management. It was embraced with enthusiasm by Mr. Pitt; Lord Dundas, home secretary; Mr. Rose, secretary of the treasury; and Mr., afterwards Sir Charles Long, now Lord Farnborough. Notwithstanding that enthusiasm, by a cause then unknown, it was made to linger till the close of the session of 1794, when an act passed enabling the treasury to enter into a contract for the purpose. When Mr. Abbot's finance committee was sitting, Mr. Pitt and his colleagues took the opportunity of employing its authority in support of Mr. Bentham's plan, against the opposing, and, to every body out of the cabinet, secret influence. Years were spent in a struggle between the ministry and that influence, and spent in vain; for after land, now occupied by the present Penitentiary, had been paid for at the price of 12,000*l*., for the half of which sum the incomparably more appropriate land at Battersea Rise might have been had, when it had been put into the possession of Mr. Bentham, the whole was stopped for the want of the signature of George III. to a certain treasury document, for the issue of 1000*l*., as compensation for the surrender of some leases to enable him to enter into actual possession. Mr. Bentham's plan for 1000 prisoners would have cost the public between 20,000*l*. and 30,000*l*.: the existing plan for 600 has already cost at least ten times that sum; and yet the 'Quarterly Review,' not very long ago, expended some of its wit upon Mr. Bentham, as the author of the Millbank Penitentiary. Dear and good is better than cheap and bad; but here it was cheap and good against dear and bad.

The history of such a life as Bentham's is the history of his opinions and his writings, which gave him a higher celebrity abroad than he enjoyed at home. Certain excellent treatises of his were admirably edited in French by his friend and the friend (a remarkable concurrence) of Mirabeau and Romilly, M. Dumont. From these Bentham became well known on the Continent; indeed better known than in his native country, and more highly esteemed, as appears from the following incident that occurred during a visit he paid to France in 1825 for the benefit of his health. Happening on one occasion to visit one of the supreme courts he was recognized on his entrance. The whole body of the advocates rose and paid him the highest marks of respect, and the court invited him to the seat of honour.

From about the year 1817 Mr. Bentham was a bencher of Lincoln's Inn. He died in Queen Square Place, Westminster, where he had resided nearly half a century, on the 6th of June, 1832, being in the eighty-fifth year of his age. Up to extreme old age he retained, with much of the intellectual power of the prime of manhood, the simplicity and the freshness of early youth; and even in the last moments of his existence the serenity and cheerfulness of his mind did not desert him.

'He was capable,' says his friend Dr. Southwood Smith, to whom he bequeathed his body for the purposes of anatomical science, in the lecture delivered over his remains, 'of great severity and continuity of mental labour. For upwards of half a century he devoted seldom less than eight, often ten, and occasionally twelve hours of every day to intense study. This was the more remarkable, as his physical constitution was by no means strong. His health, during the periods of childhood, youth, and adolescence, was infirm; it was not until the age of manhood that it acquired some degree of vigour: but that vigour increased with advancing age, so that during the space of sixty years he never laboured under any serious malady, and rarely suffered even from slight indisposition; and at the age of eighty-four he looked no older, and constitutionally was not older, than most men are at sixty. Thus adding another illustrious name to the splendid catalogue which establishes the fact, that severe and constant mental labour is not incompatible with health and longevity, but conducive to both, provided the mind be unanxious and the habits temperate.

'He was a great economist of time. He knew the value of minutes. The disposal of his hours, both of labour and of repose, was a matter of systematic arrangement; and the arrangement was determined on the principle, that it is a calamity to lose the smallest portion of time. He did not deem it sufficient to provide against the loss of a day or an hour: he took effectual means to prevent the occurrence of any such calamity to him; but he did more: he was careful to provide against the loss even of a single minute; and there is on record no example of a human being who lived more habitually under the practical consciousness that his days are numbered, and that "the night cometh, in which no man can work."' (Dr. S. Smith's *Lecture*, pp. 56-7.)

'That he might be in the less danger of falling under the influence of any wrong bias,' we still quote Dr. Southwood Smith's *Lecture*, 'he kept himself as much as possible from all personal contact with what is called the world. Had he engaged in the active pursuits of life, money-getting, power-acquiring pursuits, he, like all other men so engaged, must have had prejudices to humour, interests to conciliate, friends to serve, enemies to subdue; and therefore, like other men under the influence of such motives, must sometimes have missed the truth, and sometimes have concealed or modified it. But he placed himself above all danger of this kind, by retiring from the practice of the profession for which he had been educated, and by living in a simple manner on a small income allowed him by his father: and when, by the death of his father, he at length came into the possession of a patrimony which secured him a moderate competence, from that moment he dismissed from his mind all further thoughts about his private fortune, and bent the whole power of his mind, without distraction, to his legislative and moral labours. Nor was he less careful to keep his benevolent affections fervent, than his understanding free from wrong bias. He surrounded himself only with persons whose sympathies were like his own, and whose sympathies he might direct to their appropriate objects in the active pursuits of life. Though he himself took no part in the actual business of legislation and government, yet, either by personal communication or confidential correspondence with them, he guided the minds of many of the most distinguished legislators and patriots, not only of his own country, but of all countries in both hemispheres. To frame weapons for the advocates of the reform of the institutions of his own country, was his daily occupation and his highest pleasure: and to him resorted, for counsel and encouragement, the most able and devoted of those advocates; while the patriots and philanthropists of Europe, as well as those of the new world, the countrymen of Washington, Franklin, and Jefferson, together with the legislators and patriots of South America, speak of him as a tutelary spirit, and declare the practical application of his principles to be the object and end of their labours.'—pp. 49-50.

The leading principle of Bentham's philosophy is, that the end of all human actions and morality is happiness. By happiness Bentham means pleasure and exemption from pain; and the fundamental principle from which he starts is, that the actions of sentient beings are wholly governed by pleasure and pain. He held that happiness is the *summum bonum*, in fact, the only thing desirable in itself; that all other things are desirable solely as means to that end: that therefore the production of the greatest possible amount of happiness is the only fit object of all human exertion; and consequently of all morals and legislation.

In expounding his doctrines, Mr. Bentham has laid them open to the cavils of many disingenuous minds, and prejudiced against them many generous and honest minds, chiefly, as it appears to us, from not having himself sufficiently entered into the metaphysical grounds of them. His system has been branded with the name of 'cold-blooded,' 'calculating,' 'selfish.' It may be shown, however, that what Bentham termed 'selfish,' would in ordinary language frequently be termed, in the highest and purest degree, *disinterested* and *benevolent*. Among the very last things which his hand penned, in a book of memoranda, was found the following passage: 'I am a selfish man, as selfish as any man can be. But in me, some how or other, so it happens, selfishness has taken the shape of benevolence. No other man is there upon earth, the prospect of whose sufferings would be to me a pleasurable one: no man is there upon earth, the sight of whose suffering would not to me be a more or less painful one: no man upon earth is there, the sight of whose enjoyment, unless believed by me to be derived from a more than equivalent suffering endured by some other man, would not be of a pleasurable nature rather than of a painful one. Such in me is the force of sympathy!'

Now here is a man, who throughout his whole long life never purchased a single gratification at the expense of pain to another; whose whole happiness throughout life consisted in the contemplation of the happiness of the millions of 'all nations, and kindreds, and people and tongues,' for whom he laboured with the earnestness of one who indeed felt that 'the night cometh in which no man can work;' and who at the age of eighty-four, carried to his grave the purity and the guilelessness of early childhood; and yet calls himself *selfish*, 'as selfish as any man can be.'

The last passage quoted from Dr. S. Smith, we think contains, or at least points to the explanation of some of those peculiarities which probably narrowed the sphere of Bentham's usefulness, certainly lowered the degree of his greatness. We allude to the circumstance of his 'surrounding himself only with persons whose sympathies were like his own.' It has always appeared to us that Bentham secluded himself too much. The greatest political and legislative philosophers in all ages have mingled, at least occasionally, in the business of men, if not testing, at least relieving their abstruser meditations, by the study of man as engaged in action. Those too among them, who have exercised most influence over the minds of mankind, have been content, however far their *thinking* departed from *theirs*, in the general at least to 'speak with the vulgar.' But Bentham, from the time when he embarked in original speculation, not only secluded himself from the general converse of his contemporaries, but occupied himself very little in studying the ideas of others*, who like himself had devoted their lives to thinking. The effect of the first was to render his style inaccessible to the mass of his countrymen; of the other to produce what has been aptly termed one-sidedness of mind. His appears, indeed, from all the evidence that we have collected concerning it, to have been an understanding which, though singularly acute and original, had no great facility in apprehending the thoughts of others. Now such an understanding, though vastly superior to that large class of passive understandings which are able to store themselves with the thoughts of other men, but there stop, is almost necessarily excluded from the first order of great minds, which possess an equal power in mastering the ideas of others, and striking out new ones of their own. Without this power, a man, however original, will waste much of his energy in making discoveries that have been made long before he was born. His theories, too, will be apt to be wanting in comprehensiveness. And this is a fault which no pains-taking, which no acuteness ever can remedy.

An assertion of Bentham's, that 'all motives are abstractedly good,' has called forth a good deal of criticism, and not a little virtuous indignation among certain critics. These critics, however, have generally committed the blunder of confounding motive and intention. Mr. Bentham never affirmed that all *intentions* are good; nor even that all *motives* are equally *likely* to produce good actions. By saying that all motives are in themselves good, he merely means as he himself explains it ('Morals and Legislation,' vol. i. p. 169.) that pleasure is in *itself* a good, a motive being substantially nothing more than pleasure or pain, operating in a certain manner, *i. e.* some pleasure which the act in question is expected to be a means of continuing or producing; some pain which it is expected to be a means of discontinuing or preventing. And he distinctly lays it down, that although in a single given act, 'goodness or badness cannot, with any propriety, be predicated of motives,' yet it may of '*disposition*—a kind of fictitious entity, feigned for the convenience of discourse, in order to express what there is supposed to be *permanent* in a man's frame of mind, where, on such or such an occasion, he has been influenced by such or such a motive, to engage in an act which, as it appeared to him, was of such or such a tendency.' (*Morals and Legislation*, vol. i. p. 218.)

Bentham appears, from the number of tables scattered through his works, to have been particularly fond of tabularizing; and, like many other makers of tables, as well as other things, he does not show, to our apprehension, any extraordinary excellence in this favourite pursuit. He was fond of heaping division upon division in almost endless extent: and very frequently his classes are distinguishable by no logical *differentia* that we have ever been able to discover; but form that species of division which has received the name of a distinction without a difference. A very remarkable example of this occurs in his 'Essay on Nomenclature and Classification.' He gives the following enumeration of the faculties of the mind:—

1. Perception.
2. Judgment.
3. Memory.
4. Deduction, *i. e.* Ratiocination.
5. Abstraction.
6. Synthesis, that is, Combination.
7. Imagination.
8. Invention.
9. Attention.
10. Observation.
11. Comparison.
12. Generalization.
13. Induction.
14. Analysis.
15. Methodization, or Arrangement.
16. Distribution.
17. Communication.

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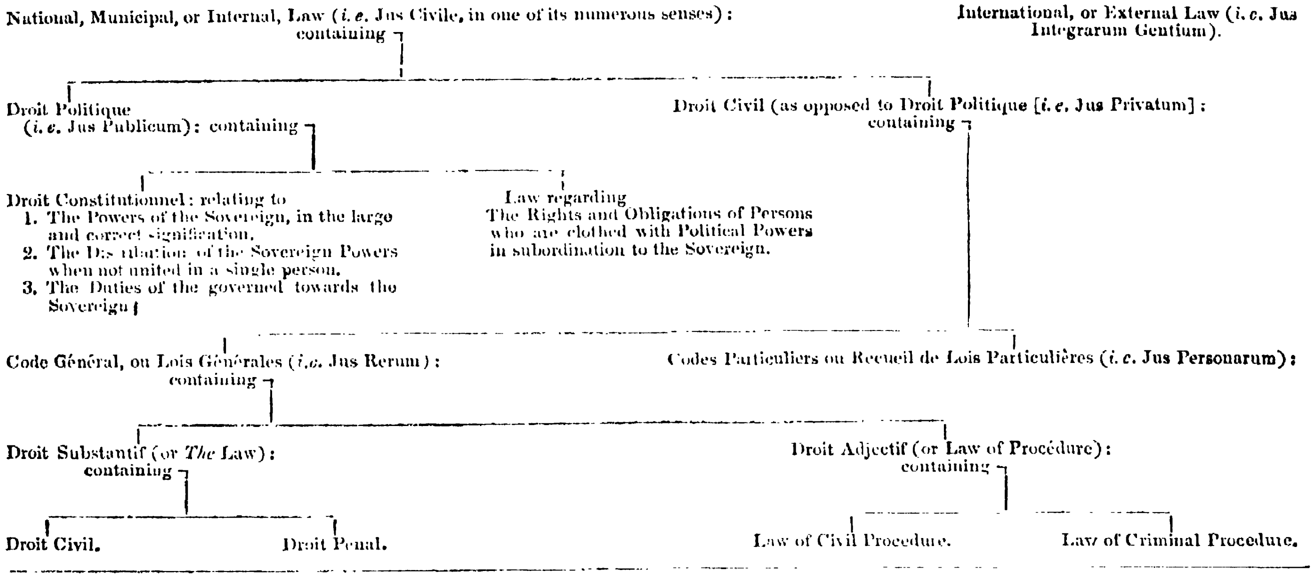
* One of the most striking instances of this is the following passage in his 'Deontology,' a posthumous work of Mr. Bentham. 'While Xenophon was writing history, and Euclid teaching geometry, Socrates and Plato were talking nonsense, under pretence of talking wisdom and morality. This morality of theirs consisted in words; this wisdom of theirs was the denial of matters known to every man's experience.' Now, it is truly remarkable that the morality of Socrates resembles that of Bentham in almost every essential, and the inferiority of Bentham's manner of exposition to that of Socrates is mainly attributable to the circumstance mentioned in the text. While Bentham lived in seclusion, Socrates lived constantly in the world. But Socrates was two thousand years in advance of his age, Bentham perhaps a tenth of that time before his. See another note on this subject, pp. 21, 47.

It will be unnecessary to point out the degree either of metaphysical or logical merit displayed in this classification, which in truth is only an example of what is frequent in Bentham—a substitution of cataloguing for analysis. Anything like the application of a searching analysis would have greatly diminished the catalogue, and by consequence greatly simplified the subject, and anything like the application of a logical method would have greatly altered the arrangement. Bentham, with his usual honest candour, gives in a note the following classification by Condillac (*Logique*, ch. vii.): 1. Attention; 2. Comparaison; 3. Jugement; 4. Reflexion: 5. Imagination; 6. Raisonnement.

In the essay from which the above is taken, Bentham has indeed fully succeeded in showing the faultiness of D'Alembert's *Système figuré des Connaissances humaines*, in the *Discours préliminaire* of the *Encyclopédie*, intended, as D'Alembert himself says, as an improvement upon the encyclopædical table of Lord Bacon; but the one which he has offered in the room of it is not a whit less faulty, though the faults are different. The limits to which we are here necessarily confined will only permit us to indicate these things without going into the proof of them. The reader who wishes for more satisfactory knowledge on the subject will naturally refer to the works themselves, which are well worthy of perusal on many accounts, but on none more than their pre-eminent tendency to incite to thought the mind of him who reads them.

From the general character of Bentham's tabularization, however, we would except the division which seems to have been conceived by him of the field of law. Among some valuable tables which Professor Austin drew up for the use of his class in the London University, was one exhibiting the *Corpus Juris* ('Corps complet de Droit'), arranged in the order which seems to have been conceived by Mr. Bentham, as expounded in his *Traités de Législation*, more particularly in the *Vue générale d'un Corps complet de Droit*. It is particularly worthy of remark that, in the table of which we subjoin an outline, Bentham, without intending it, has formed a corpus juris very nearly similar to that of the Roman classical jurists.


National, Municipal, or Internal, Law (i. e. Jus Civile, in one of its numerous senses): containing
International, or External Law (i. e. Jus Integrarum Gentium).
Droit Politique (i. e. Jus Publicum): containing
Droit Civil (as opposed to Droit Politique [i. e. Jus Privatum]; containing
Droit Constitutionnel: relating to
1. The Powers of the Sovereign, in the large and correct signification.
2. The Distribution of the Sovereign Powers when not united in a single person.
3. The Duties of the governed towards the Sovereign;
Law regarding The Rights and Obligations of Persons who are clothed with Political Powers in subordination to the Sovereign.
Code Général, ou Lois Générales (i. e. Jus Rerum): containing
Codes Particuliers ou Recueil de Lois Particulières (i. e. Jus Personarum);
Droit Substantif (or The Law): containing
Droit Adjectif (or Law of Procédure): containing
Droit Civil.
Droit Penal.
Law of Civil Procedure.
Law of Criminal Procedure.

Bentham's great merit, and that probably by which his name will be most remembered, was as a philosophical jurist, and writer on legislation. His excellence in this department mainly consisted in substituting rational principles as rules of law in the place of the time-honoured maxims which hardly any one before his time had dared to dispute. It has been said, indeed, and said truly, that the doctrine of utility, as the foundation of virtue, is as old as the earliest Greek philosophers (see the *Protagoras* of Plato; also the *Memorabilia* of Xenophon); and has divided the philosophic world, in every age of philosophy, since their time. But the definitions of natural law, natural justice, and the like, which pervade all the writers on legislation and law from Ulpian down to Montesquieu and Blackstone, show how little progress had been made, previously to Mr. Bentham, in the application of this great principle to the field of law. For his services in this department Bentham deserves, and we doubt not will receive, the admiration and the gratitude of all ages.*

It is impossible to know what the philosophy of jurisprudence and legislation owes to Bentham, without knowing what was the condition of it when he began his labours. No system of law then established, least of all that of the country of his birth, exhibited in its construction a comprehensive adaptation of means to ends. The ages to which the English law owed its foundations may have produced some works in architecture deserving of admiration, but it has certainly produced no such fabric of law, notwithstanding the loud eulogies of the English lawyers. And that fabric, faulty from its foundations, was rendered still more so by the patch-work manner in which additions were made to it. Though the Gothic structures of Westminster Hall and Abbey would be far too favourable a representation of the Gothic structure of our law, there was till lately near them, in the two houses of parliament, with their marked want of architectural adaptation to their end, their inconvenient committee rooms, and their endless labyrinth of circuitous staircases and passages that 'led to nothing,' no very imperfect type, no bad material image of it. To borrow the significant language of Mr. Bentham himself (*Rationale of Judicial Evidence*, vol. i. p. 6), 'It appeared to me,' he says, 'that no private family, composed of half a dozen members, could subsist a twelvemonth under the governance of such rules: and that were the principles from which they flow to receive their full effect, the utmost extravagance of Jacobinism would not be more surely fatal to the existence of society than the sort of dealing which, in these seats of elaborate wisdom, calls itself by the name of justice. That the incomprehensibility of the law, a circumstance which, if the law were wise and rational, would be the greatest of all abuses, is the very remedy which, in its present state, preserves society from utter dissolution; and that if rogues did but know all the pains that the law has taken for their benefit, honest men would have nothing left they could call their own.'

The English people had contrived to persuade themselves that the English law, as it was when Mr. Bentham found it, was the perfection of reason. It was a fabric reared by the most powerful and exalted intellects, by wisdom little and only short of divine. To utter a word therefore that might tend to impugn such a system was the height of arrogance and presumption; to raise a hand against it was absolute profanation, nay, the most atrocious sacrilege. Accordingly, when Mr. Bentham commenced his attack, he was at first looked upon as a sort of harmless lunatic. By and by, however, he began to be regarded in a more serious light—as a madman, who might be dangerous if not put under some restraint. He was assailed from all sides with all sorts of weapons, from the stately contempt of the dignified man of office down to the ridicule and scurrility of the small wits and critics. Nevertheless he did not slacken in the work he had begun, but continued it with unwearied and reiterated efforts.

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* From these absurd and misty sublimities, however, the exposition given by Socrates (Xenoph. *Mem.* lib. iv. cap. 4) is remarkably free. Socrates endeavours, with his usual acuteness, to prove *τὸ αὐτὸ δίκαιόν τε καὶ νόμιμον*. His object is to show that that is unjust which is a breach of some law human (*i. e.* set by the sovereign legislator to subjects) or divine, and he takes the principle of utility to be the index or exponent of this class of laws. He contends with much ingenuity that the misery, which is the inevitable consequence of certain acts, is at once the sanction with which the Deity has armed some of his unrevealed commands and *by* which he *reveals* them. But the Roman lawyers and their modern successors, in almost every country of Europe, instead of taking their philosophy from Socrates, adopted the fustian of the Stoics. Conclusions very similar to those of Socrates are arrived at by Professor Austin in his 'Province of Jurisprudence Determined,'

Mr. Bentham fought this battle for nearly sixty years, and the greater part of that time he fought it alone; for a long time, too, almost without making a single convert to his opinions. Latterly, M. Dumont gave him considerable assistance by putting his ideas into French.* At length his energy and perseverance were rewarded with some degree of success. Some of the leaders of public opinion became convinced, and they, in their turn, convinced or persuaded others. Mr. Bentham has not been merely a destroyer. Indeed he considered it a positive duty never to assail what is established, without having a clear view of what ought to be substituted. In some most important branches of the science of law, which were in a more wretched state than almost any of the others when he took them in hand, he seems to have left nothing to be sought by future inquirers; we mean the departments of procedure, evidence, and the judicial establishment. He has done almost all that remained to perfect the theory of punishment. It is with regard to the civil code, that he has done least, and left most to be done. Yet even here his services have been very great; particularly by exposing the viciousness of the existing language of jurisprudence; and by what he has done towards enforcing the expediency of a code, that is, of a complete and systematic body of law.

One of the excellencies of Mr. Bentham's early writings is the ease and elegance, the force, and raciness of their style. This remark may surprise those who take their idea of Bentham from the specimens presented by those of his critics, whose object was to depreciate by turning him into ridicule. Certainly, he gave some occasion for this by some peculiarities which he contracted in the later period of his life. But of the truth of our remark above, any reader may satisfy himself by referring to Mr. Bentham's earlier works; we would particularize the 'Fragment on Government,' the 'Defence of Usury,' the 'Plan of a Judicial Establishment,' or even the 'Panopticon;' from which last, a work but little known, we shall give an extract, which by its eloquence will surprise many in whose minds the name of Bentham has long been associated with sentences unreadable from the roughness of the materials, and the clumsiness or the complication of the structure. Everybody has heard of Burke's eulogy of John Howard, generally styled the philanthropist, but few know that Bentham has also written a eulogy of Howard, which may challenge competition, we think, even for eloquence with Burke's. Speaking of the want of leading principles, order, and connexion in Howard's publications, he says:—'My venerable friend was much better employed than in arranging words and sentences. Instead of doing what so many could do if they would, what he did for the service of mankind was what scarce any man could have done, and no man would do, but himself. In the scale of moral desert, the labours of the legislator and the writer are as far below his, as earth is below heaven. His was the truly Christian choice; the lot in which is to be found the least of that which selfish nature covets, and the most of what it shrinks from. His kingdom was of a better world: he died a martyr, after living an apostle.'—*Panopticon*, Postscript, part ii. p. 2.

In the style of the work from which the above is extracted, there is a vigour, a freshness, a vivacity, a playfulness, a felicity of expression, that renders the perusal perfectly delightful. Indeed, of these qualities instances abound, even in some of his works that are reckoned most unreadable; for example, in the *Rationale of Judicial Evidence*. This makes us the more regret Bentham's seclusion, to which we have before alluded, inasmuch as its tendency was to make him less cultivate the above qualities of writing. For, though we doubt whether Mr. Bentham could ever have acquired first-rate powers of metaphysical analysis, we are of opinion, however paradoxical that opinion may appear to some, that he was fitted by the graces of a style as easy and clear as Hume's and far more vigorous, pure, and idiomatic, to have become one of the most popular prose writers that England has ever produced. But the momentous and noble object which was the aim and end of all Bentham's labours was probably quite incompatible with present popularity. He appears himself to have fully felt this, and he has forcibly and aptly expressed it in the following passage, speaking of one of his most complete and valuable works, the *Rationale of Judicial Evidence*. 'The species of readers for whose use it was really designed, and whose thanks will not be wanting to the author's ashes, is the legislator; the species of legislator who as yet remains to be formed; the legislator, who neither is under the dominion of an interest hostile to that of the public, nor is in league with those who are.'—*Rationale of Judicial Evidence*, vol. i. p. 23.

Mr. Bentham's lot in life may on the whole be pronounced to have been a peculiarly happy one; even though unattended with a very widely diffused reputation in his native country; and even though, instead of that, exposed to the attacks of contemporary writers. His easy circumstances and his excellent health enabled him to devote his whole time and energies to those pursuits which exercised his highest faculties, and were to him a rich and unfailing source of the most delightful excitement. On the other hand, his retired habits preserved him from personal contact with any but those who valued his acquaintance; and, as for the writers who spoke of him with ridicule and contempt, he never read them, and therefore they never disturbed the serenity of his mind, or ruffled the tranquil surface of his contemplative and happy life.

Mr. Bentham's principal works are the 'Introduction to the Principles of Morals and Legislation,' the 'Fragment on Government,' the 'Rationale of Judicial Evidence,' in five volumes, including a very full examination of the procedure of the English courts; the 'Book of Fallacies,' the 'Plan of a Judicial Establishment,' one of his most finished productions, printed in 1792, but never regularly published; his 'Defence of Usury,' 'Panopticon,' an admirable work on prison discipline, 'Constitutional Code,' and many others: besides the treatises so well edited in French by M. Dumont, from the above works and various unpublished manuscripts, which contain all his most important doctrines.

BENTHEIM, an earldom, lying to the west of the Ems, and situated between the Prussian province of Westphalia, and the Dutch province of Overijssel; it extends from 52° 16′ to 52° 40′ N. lat., and from 6° 28′ to 7° 17′ E. long., and is comprehended in the Hanoverian province of Osnabrück. Its name is derived from the castle and family of the Bentheim-Bentheims. It is a compact territory, about 399 square miles in superficial extent; the surface is in general a uniform level, and the soil, though sandy, is in most parts productive. It is watered by the Vechte and its tributaries, the Aa and Dinkel: the Vechte is used along its whole line for floating timber, and is navigable from Nordhorn to Zwoll. Bentheim contains a number of morasses and moors, which yield excellent peat, is partially wooded, produces abundance of grain, rape-seed, flax, and potatoes, rears considerable quantities of horses, horned cattle, sheep, and geese, and its woods and streams are well-stocked with game and fish. Sand-stone, mill-stones, and free-stone are raised along the hills, near Bentheim and Gildehaus, and exported to Holland; potter's-clay and coals are also among its mineral products, and sulphurous springs exist in the forest of Bentheim. It has no manufactures of any importance, except the spinning of flax-yarns and linen-weaving. The climate, though not free from fogs, is healthy and temperate. The earldom contains four towns (Bentheim with 1800 inhabitants, Schüttdorf with 1400, Nordhorn with 1200, and Neuenhaus with 1400), one market-village, sixty-two villages and hamlets, and about 4400 houses; the population, which amounted to 24,364 souls in 1812, and 25,569 in 1828, is at present estimated at about 26,100. In 1812, the number of houses was 3795; and in 1828, 4375. The inhabitants are of German descent, and use the Westphalian dialect; but in manners they assimilate to their neighbours, the Dutch, and Dutch is also spoken in some few places. The majority of the inhabitants are of the reformed

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* The 'Traités de Législation' first appeared in 1802. In 1829 a complete edition of those works of Bentham, which were edited in French by Dumont, was published at Brussels in six demi-vols. royal 8vo. Of this edition 1600 copies have been already sold. It is computed that of Mr. Bentham's works, chiefly those on legislation, not fewer than 80,000 volumes have been sold in Europe and America, in the French, Spanish, Italian, and now of late in the German and Polish languages.

Lutheran persuasion; the Roman Catholics, who compose five out of nineteen parishes, are included in the diocese of Osnabrück. The counts of Bentheim were raised by the Prussian monarch to the rank of princes in 1817, and have at present a seat among the twenty-six members in the upper house of the Hanoverian legislature. In 1753 they pawned their inheritance for thirty years to Hanover; but having failed to redeem it, Napoleon cancelled the obligation on their paying to Hanover a sum of 32,000*l.* (800,000 francs) in 1804. Two years afterwards he placed Bentheim under the sovereignty of the Grand-Duke of Berg, and in 1810 annexed it to the French empire, as part of the department of the Lippe. In 1813, however, Hanover, upon recovering its independence, refused to ratify the above adjustment of the debt due from Bentheim, and under the treaty of Vienna, retained it in full sovereignty, allowing the counts an annuity of 15,000 dollars (2475*l.*), until the year 1823, when the debt was paid off, and the original possessors were re-instated in their patrimony. The earldom is divided into the two districts of Bentheim or the Upper Earldom, and Neuenhaus or the Lower Earldom. The little town of Bentheim is built on the side of some rising ground, at the summit of which stands the old, fortified, ancestral castle; it has a mineral spring and baths. 52° 30′ N. lat., and 7° 0′ E. long.

BENTHEIM-STEINFURT is an antient earldom in Westphalia, immediately adjoining the preceding, and held by the same family: it met with the same fate as their other possessions in Napoleon's times; but after the fall of Napoleon in 1816 it was placed under the sovereignty of the king of Prussia, who conferred the rank of princes on its possessors. It occupies an area of about thirty-one square miles, has about 3800 inhabitants, contains one town, Steinfurt on the Aa (the capital of the Prussian circle of that name in the government of Münster), with about 2400 inhabitants, and three hamlets. The revenue of this earldom is about 2050*l.* Bentheim and Steinfurt, with some minor estates in this part of Germany, form a territory of about 504 square miles, the annual revenue of which accruing to the prince-counts of Bentheim-Bentheim, is estimated at 105,000 dollars (14,437*l.* 10*s.*).

BENTI'VI (zoology), or *Bientiveo*, the Brazilian name for the *Tyrannus sulphuratus* of Vieillot. Swainson, who has paid great attention to the tyrants (*Tyrannidæ*), considers that it makes the nearest approach to *Lanius* (butcher-bird) of any bird yet discovered; 'not only,' says this close observer, 'from its greatly compressed bill, but by feeding upon reptiles, and thus becoming partly carnivorous. We have more than once taken from the stomach of this species lizards in an entire state, sufficiently large to excite surprise how they could possibly have been swallowed by the bird." Azara mentions its haunting the dead carcases which the Caracaras (*Polyborus Braziliensis*) had left, for the sake of the pickings; and Swainson observes, in confirmation of this, that 'its claws, unlike those of all other tyrants, are but slightly curved; thus enabling the bird, when so engaged, to walk without difficulty upon the ground.' [See TYRANT.]

BENTIVO'GLIO, GIOVA'NNI, was son of Annibale Bentivoglio, who, after being for some years at the head of the commonwealth of Bologna, was murdered by a rival faction in 1445. Giovanni was then a boy six years of age. In 1462 he was made 'Principe del Senato' of Bologna, and by degrees engrossed the sole authority of the republic. The Melvezzi family conspired against him in 1488, but were detected, and cruelly proscribed. About twenty individuals of that family, or its adherents, fell by the hand of the executioner, and the rest were banished. Giovanni showed himself stern and unforgiving, and he hired bravos who executed his mandates in various parts of Italy. At the same time, like his more illustrious contemporary Lorenzo de' Medici, he was the patron of the arts and of learning; he adorned Bologna with fine buildings, and made collections of statues and paintings, and MSS. Pope Julius II., having determined to reduce Bologna under the direct dominion of the papal see, marched an army against that city in 1506, and Bentivoglio, after forty-four years' dominion, was obliged to escape with his family into the Milanese territory, where he died two years after at the age of 70. His two sons were replaced by the French in 1511 at the head of the government of Bologna; but in the next year the French being obliged to leave Italy, Bologna surrendered again to the Pope in June 1512, and the Bentivoglios emigrated to Ferrara, where they settled under the protection of the Duke d'Este.

BENTIVO'GLIO, E'RCOLE, was grandson of Giovanni. He was born at Bologna in 1506. He accompanied his father in his emigration to Ferrara, where Duke Alfonso had married his aunt. He was employed by the House of Este in several important missions, during one of which he died at Venice in 1573. Ercole wrote some *Satire*, which are considered next in merit to those of Ariosto, and also several *Commedie*, which were much applauded at the time: he was also a lyric poet of some celebrity.

BENTIVO'GLIO, GUIDO, born at Ferrara in 1579, was a descendant of the Bentivoglios, who had been rulers of Bologna in the preceding century. He studied at Padua, and returned to Ferrara in 1597, when the Court of Rome took possession of that duchy, in disregard of the claims of Cesare d'Este, the collateral heir of Alfonso II., the last duke. Ippolito Bentivoglio, Guido's elder brother, had shown himself attached to the Duke Cesare, to whom he was related, and had thereby incurred the displeasure of Cardinal Aldobrandino, the papal legate. Guido, who was naturally of a supple, insinuating character, contrived to effect a reconciliation between them, and also between Cesare himself, who took the title of Duke of Modena, and Pope Clement VIII. When the pope soon after came to Ferrara, he took particular notice of young Guido, and when Guido, in 1601, proceeded to Rome, he was made a prelate of the papal court. After the death of Clement in 1605, his successor Paul V. sent him as nuncio to Flanders, although he was only twenty-six years of age. His mission was to endeavour to re-establish concord between the various parties in that country long distracted by political and religious dissensions, and to bring them again into submission to the papal spiritual authority. It was during his residence in Flanders that he wrote his historical work on the insurrection of that country against the Spaniards, in 1566, and the subsequent wars between the Duke of Alba, and the other generals of Philip II. and the Hollanders (*Della Guerra di Fiandra*, in three parts, 3 vols. 4to., Cologne, 1632-9). He brings his narrative down to the year 1607. The work is of course written in the spirit of an advocate of the church of Rome and of the Spanish authority, but as such it displays considerable fairness, being superior in this respect to the work of his contemporary the Jesuit Strada, on the same subject, whose partiality for the Spaniards Bentivoglio himself censures. The language, like that of all Bentivoglio's works, is pure, and the style is grave and dignified.

In 1616 Bentivoglio was sent nuncio to France, where he won the favour of Louis XIII. and his court, by the mildness and courteousness of his manners, and his prudence and tact in diplomatic affairs. In 1621 he was made a cardinal, and he became afterwards the friend and confidant of Pope Urban VIII., whom he often assisted with his counsels. Urban, however, was very imperious and obstinate, and in his old age was swayed by his nephews the Barberini and their party. Bentivoglio was one of the few men at his court who could and would speak at times the truth without flattery. In 1641 Bentivoglio was made bishop of Terracina. When Urban VIII. died in 1644 it was the general opinion that Bentivoglio would be his successor in the papal chair, which probably he expected himself. But he fell ill and died, at the age of sixty-five, before the cardinals in conclave assembled had time to make their choice. Bentivoglio was regular in his conduct and morals, but he was fond of pomp and grandeur in his establishment, a taste then very prevalent at the court of Rome. The other works of Bentivoglio are, *Relazioni fatte in tempo delle Nunziature di Fiandra e di Francia*, 4to., Cologne, 1630. In this work, which may also be called historical, he describes the manners and character of the nations among whom he lived, and the remarkable incidents of his time. It was translated into English by Henry Earl of Monmouth, fol. London, 1652. *Memorie con le quali descrive la sua Vita*, 8vo., Amsterdam, 1648: this is a sort of diary of his life, published after his death. Of this and the two preceding historical works, Gravina the Italian critic observes, that Bentivoglio is an elegant but not deep writer, that he was shy in manifesting his real sentiments and the secret councils of courts and statesmen, of which 'he is often silent, not through ignorance or carelessness, but through prudential caution.' *Lettere*, 8vo., Roma, 1654. This last work is held in much estimation for the correctness of the language, and fluency and ease of the style, and is therefore often put into the hands of students of Italian. The grammarian Biagioli published an edition of these letters at Paris, 1807, with useful notes, which has been frequently reprinted for the use of schools. In the Barberini library at Rome, are three more volumes of Bentivoglio's letters in MS., of which only some have been extracted and published. They were written from Flanders and France during his long residence in those countries.

BENTLEY, RICHARD, born January 27, 1662, was the son of a small farmer or yeoman, resident at Oulton, in the parish of Rothwell, near Wakefield, in Yorkshire. He was educated at the grammar school of Wakefield, and at St. John's College, Cambridge; of which he was admitted a sizar, May 24, 1676. No fellowship falling vacant to which he was eligible, he accepted the mastership of the grammar-school of Spalding in Lincolnshire, early in 1682. After holding that office for a year, he resigned it to become private tutor to the son of Dr. Stillingfleet, afterwards Bishop of Worcester. He accompanied his pupil to Oxford, where he was admitted to the same degree of M.A. as he held at Cambridge. His residence at Oxford contributed to advance both his reputation and learning; he had access to the manuscript treasures of the Bodleian library, and became intimate with several distinguished members of the university, especially Mill, the celebrated editor of the *Greek Testament*, and Bernard, then Savilian Professor. A series of his letters to and from the latter is published in the *Museum Criticum*, v. ii. p. 533. At this time he meditated two very laborious undertakings:—a complete collection of 'Fragments of the Greek Poets,' and an edition of the three principal Greek lexicographers, Hesychius, Suidas, and the *Etymologicum Magnum*, to be printed in parallel columns in the same page. Neither scheme, however, was carried into effect. To the edition of *Callimachus*, published by Græevius in 1697, Bentley contributed a collection of the fragments of that poet. But his reputation for scholarship was established by a performance of much more confined nature—a dissertation on an obscure chronicler, named Malalas, which was published as an Appendix to Dr. Mill's edition of the author, in 1691. [See MALALAS. MILL.] This showed such an intimate acquaintance with Greek literature, especially the drama, that it drew the eyes of foreign as well as British scholars upon him, and obtained a warm tribute of admiration from the great critics, Grævius and Spanheim, to this new and brilliant star of British literature.

Bentley was ordained deacon in March 1690. In 1692 he obtained the first nomination to the lectureship newly founded under the will of Mr. Boyle, in defence of religion, natural and revealed. [See BOYLE, ROBERT.] He spared no labour to improve this opportunity of establishing his reputation as a divine. He chose for his subject the confutation of atheism: directing his arguments more especially against the system of Hobbes, of which, he says, 'the taverns and coffee-houses, nay Westminster Hall and the very churches were full.' The latter portion of the course was devoted to prove the existence of a Creator, from the evidences of design in the constitution of the universe, as explained by Newton; whose great discoveries, published in the *Principia*, about six years before, were slowly received by the learned, and continued a sealed book to the world at large. To clear the points in which he himself felt any difficulty, he entered into a correspondence with Newton, whose replies were published in 1756, by Bentley's nephew. These lectures were received with great applause, and established the author's reputation as a preacher. In October, 1692, he was rewarded with a stall at Worcester, and in the following year was appointed keeper of the King's Library. In 1694 he was re-appointed Boyle Lecturer, and followed up his refutation of atheism by a defence of Christianity against the attacks of infidels. This second series of sermons was never published, and at present no trace of their existence can be found. In 1696 he took the degree of D.D. at Cambridge; and on this occasion, in his public exercise (or in academical language, his *act*), he appeared again as a defender of revealed religion.

Bentley's appointment to the office of King's Librarian was the accidental cause of his writing the celebrated *Dissertation on the Epistles of Phalaris*. The once famous controversy between Boyle and Bentley arose out of an alleged want of courtesy on the part of the latter, relative to the loan of a MS. from the King's Library to the Hon. C. Boyle, an undergraduate of Christ's Church, Oxford, of promising talents, who had undertaken to edit the *Epistles* [see BOYLE, CHARLES], and who resented the supposed slight in a pettish passage in the preface (Jan. 1, 1695). On seeing this, Bentley addressed to Boyle a courteous explanation of his conduct, expecting the offensive passage to be cancelled or retracted; but he obtained no satisfaction, and was told he might seek his redress in any method he pleased. Two years elapsed before he took public notice of the insult. It so happened that Bentley had made up his mind that the *Epistles* ascribed to Phalaris were spurious, before this quarrel occurred; and in 1697 he was called on by his friend, the learned Wotton, to state the grounds on which he came to that conclusion, in fulfilment of a promise to that effect. This he did in an Appendix to the second edition of Wotton's *Reflections on Antient and Modern Learning*. At the end of it he notices the unjust charge made against him by Boyle, whose performance he criticises with much asperity. This work created a great sensation, especially among the Christchurch men, who chose to consider it as an insult to the whole society. Boyle, however, seems to have been esteemed unequal to avenge it; for a knot of the best scholars and wits of the college united their pens to punish Bentley, not by fair argument, but by every artifice which wit and malice could devise. Not only his learning, but his character, literary, moral, and personal, were attacked: and it is alike singular and discreditable, that so virulent a hatred as was shown in this quarrel should have been excited by so slight a cause. The joint work, in which the celebrated Atterbury was the chief performer, appeared in March, 1698, and was entitled, *Dr. Bentley's Dissertations on the Epistles of Phalaris and the Fables of Æsop examined*, by the Hon. Charles Boyle, Esq. It obtained such a degree of popularity, as gives some reason for supposing that Bentley had already made himself known and disliked for that presumptuous arrogance which he displayed so remarkably in after-life. It has been so long and so generally acknowledged that in this controversy Bentley was triumphantly victorious, that many may be surprised to hear of the extremely favourable reception which the Oxford rejoinder obtained; the blow was commonly thought fatal to Bentley's reputation as a scholar.

A number of lampoons and attacks of various sorts were made upon him, of which Swift's *Battle of the Books* is the only one which has obtained celebrity. Bentley was in no hurry to reply to the storm of ridicule and abuse which assailed him on all sides: it was his maxim, he said, that no man was ever written out of reputation, except by himself. He therefore took time to mature his answer, and in the beginning of 1699 published his enlarged *Dissertations on the Epistles of Phalaris*, which has finally set at rest the question in dispute. This, however, is the least part of the merits of the work. Professedly controversial, it embodies a mass of accurate information relative to historical facts, antiquities, chronology, and philology, such as we may safely say, has rarely been collected in the same space: and the reader cannot fail to admire the ingenuity with which things apparently trifling, or foreign to the point in question, are made effective in illustrating or proving the author's views. Nothing shows so well how thoroughly digested and familiar was the vast stock of reading which Bentley possessed. The banter and ridicule of his opponents are returned with interest, and the reader is reconciled to what might seem to savour too much of arrogance and the bitterness of controversy, by a sense of the strong provocation given to the author. Warburton, no friend to Bentley, said that he had beat the Oxford men at their own weapons. The Oxford champions expressed their intention to reply, but they probably felt their ground to be cut from under their feet, for they published no answer; nor was Bentley again called into the field by any worthy antagonist.

At the end of the *Dissertation on Phalaris* Bentley examines and denies the authenticity of the epistles ascribed to Themistocles, Socrates, Euripides, and others. He also denies the genuineness of the fables which bear Æsop's name (as to their form, entirely, as to their substance, in a great measure), and traces the Æsopean (Αἰσωπεῖοι μῦθοι) Fables through a number of hands down to the comparatively modern and corrupt prose version now extant. [See ÆSOP and BABRIUS.]

On the first of February, 1700, Bentley, by the gift of the crown, was instituted Master of Trinity College, Cambridge, and resigned his stall at Worcester in consequence of that appointment. In the following year, June 24, he was admitted Archdeacon of Ely. Subsequently he was appointed Chaplain both to William III. and to Queen Anne. On the 4th Jan. 1701, he married Joanna, daughter of Sir John Bernard of Brampton, in Huntingdonshire, a lady of amiable temper and cultivated mind, with whom he lived in harmony and happiness throughout their union.

His new situation was admirably suited to meet and gratify the wishes of a scholar; and as a supporter and encourager of literature, Bentley's conduct is deserving of much praise. He took an active part in re-modelling and rendering useful the University press; he gave his countenance and assistance to Kuster, who undertook a new edition of Suidas to be printed at that press; he undertook his edition of Horace, published afterwards in 1711; he wrote his *Critical Epistles to Kuster* on the *Plutus* and *Clouds* of Aristophanes, two of which, written in 1708, are published in the *Museum Criticum* (vol. ii., see page 403, seq.), together with a Letter to Barnes on the Epistles ascribed to Euripides, dated Feb. 22 1692-3. A series of emendations, previously unpublished, of the same plays, will be found in the *Museum Criticum* (vol. ii. p. 126). He also transmitted in 1708 a long and valuable letter to Hemsterhuis, devoted principally to the correction of the fragments of comic authors in the 10th book of *Julius Pollux*, of whose *Onomasticon* that eminent critic had recently published an edition. He made an important improvement in the system of college examinations for fellowships and scholarships, by substituting for the old and loose method of oral examination, that system of written exercises which is still pursued, and which has contributed perhaps as much as any one cause, to the high reputation which the college has long maintained for purity of election as well as for the talents of its members; and he laboured with success for the improvement of the college library. Bentley's conduct in other collegiate affairs was far from praiseworthy. He showed almost from the first a domineering, arbitrary, and selfish, almost a sordid temper, which disgusted the best members of the society, and, in the end, involved him in a protracted lawsuit, much obloquy, and much uneasiness. Many of his regulations were beneficial, but even in these he contrived to put himself in the wrong, by stretching his power beyond the limits to which the statutes of Trinity have strictly and sedulously confined the Master's authority. Among these we may particularly mention his lavish expenditure on the improvement of the lodge, or master's dwelling-house; an arbitrary appropriation of the college revenue to a purpose which, if not undesirable, was at least not necessary, which caused great discontent in the society. So also the repairing, or we might almost say the rebuilding, of the present noble chapel of the college, a measure most praiseworthy in itself, became offensive and injurious to the fellows from the manner in which it was done. The same censure is due to many of the Master's fiscal and other regulations.

The fellows seem soon to have made up their minds that their new Master (who was likely to be unfavourably regarded from his being educated not in their own body, but at St. John's) was a grasping arbitrary man; and the bickerings between him and the senior fellows of the college grew frequent. The most objectionable of his acts appears to have been that of intruding fellows into the body, not by the regular and statutable course of election, but by what he termed *presumption*, by which candidates were chosen to *future* vacancies; and as the mode was unjustifiable, so his choice of persons to benefit by it was bad. Towards the close of 1709 an open rupture took place between the Master and the seniors. The former is said, in a fit of passion, to have used the words 'From henceforth farewell peace to Trinity College;' and they were verified by a long series of ruinous litigation, by which the college suffered grievously in purse, discipline, and reputation. The seniors appealed against the Master to the visitor. Unfortunately a doubt existed whether the Bishop of Ely or the crown was the visitor; and Bentley, supported by a party among the junior fellows whom he had gained over to his interest, succeeded, by every artifice which legal ingenuity and indomitable pride and obstinacy could suggest, in delaying the decision of this question till 1733, when the House of Lords finally decided that the bishop was visitor. Bishop Greene immediately summoned Bentley to appear before him, and in 1734 pronounced sentence of deprivation against him. But Bentley's obstinacy and fertility of expedients supported him even in this extremity. Availing himself of what appears to be a blunder in transcribing the statutes, where it is said that the Master, after sentence of deprivation by the visitor, shall be deposed *per eundem vicemagistrum* (by the same vicemaster, where the abbreviated form (*vicem̃.*) of the word *vicemagistrum* seems, by a blunder of the copyist, to have been changed into *visitatorem*), he refused to vacate his office until the vicemaster had carried the sentence of the visitor into effect: which, as the vicemaster was one of his most devoted followers, was equivalent to annulling the visitor's decision. He thus resisted, for four years, the utmost efforts of his adversaries to procure execution of the sentence, until the death of Bishop Greene, in May 1738, put an end to the suit. We have not attempted to give even an abstract of these proceedings, for an abstract could not well be made intelligible. To those who have leisure for such by-gone points of curious discussion, Dr. Monk's minute account of the whole suit will be full of interesting information.

In 1717, Bentley, by one of his bold and unscrupulous manœuvres, procured himself to be elected Regius Professor of Divinity. He chose for the subject of his probationary lecture a discussion of the celebrated text 1 St. John, v. 7, on the three heavenly Witnesses, in which, maintaining the doctrine of the Trinity, he gave a history of the verse, which he decidedly rejected. This work has never been printed, and Dr. Monk has not been able to discover it. It was seen and read in MS. by Porson and some other scholars of that day. Not content with being at variance with the college, he placed himself in the same position with respect to the whole university, in the very first year of office, by an attempt to extort from those persons who were to be created doctors of divinity a larger fee than it had been usual to pay. The claim, in Dr. Monk's opinion, was not undeserving of consideration; but, like most of Bentley's actions, it was prosecuted in a violent and offensive manner, and a warm dispute arose out of this paltry beginning; in the course of which the Master of Trinity and Regius Professor of Divinity, one of the first dignitaries of the university, was, by a grace of the senate, passed by a majority of more than two to one, degraded and deprived of all his degrees, Oct. 17, 1718. Against this sentence Bentley petitioned the king. The matter was referred to the Privy Council, and carried thence into the Court of King's Bench, which, after more than five years of undignified altercation, issued a mandamus, Feb. 7, to the university to restore Richard Bentley to all his degrees, and to every other right and privilege of which they had deprived him.

It shows in a strong light the remarkable activity and energy of Bentley's mind, that these harassing quarrels, which must have occupied a large portion of his time and attention, interfered so little with his critical pursuits. Some of his works, performed during this long period of disturbance, we have already noticed; we have to add a large and valuable body of notes and corrections of Cicero's *Tusculan Questions*, published in Davis's edition of that work in 1709 (Richardi Bentleii *Emendationes in Ciceronis Tusculanas*). In 1710 he wrote his *Emendations* on the comic poets, Menander and Philemon, suggested by Le Clerc's edition of the fragments of those authors. The task was one for which Le Clerc was utterly unfit: and it is said that motives of personal hostility had some influence in inducing Bentley to demonstrate that he was so, which he did with no sparing hand. The work was anonymously printed in Holland (*Emendationes in Menandri et Philemonis Reliquias, ex nupera editione Joannis Clerici; ubi multa Grotii et aliorum, plurima vero Clerici, errata castigantur*), under the signature of Phileleutherus Lipsiensis: but Bentley was universally known to be the author. Under the same name he again appeared in 1713, as a defender of revealed religion (*Remarks on the Discourse of Free-thinking*) in his reply to Anthony Collins's *Defence of Free-thinking*. His answer to the sophistry and fallacies pervading that book was judicious and effective; and for the eminent service done to the church and clergy of England by 'refuting the objections and exposing the ignorance,' to use the words of the University Grace, of the writers calling themselves Free-thinkers, Bentley received the thanks of the University of Cambridge by a vote of the Senate, Jan. 4, 1715. He also did no small service to science, by effecting the publication of a new and improved edition of Newton's *Principia*, which was intrusted, in 1709, by the venerable author to the management of the eminent mathematician, Roger Cotes. It appears also from

Jurin's preface to his edition of the Geography of Varenius (Cambridge, 1712), that he was induced to undertake this work by Bentley. In 1716 Bentley announced a plan for publishing a new critical edition of the *Greek Testament*, and explained his views on this subject in a letter to Archbishop Wake, printed in Dr. Monk's *Life*, chap. xii. For four years he meditated over this design, upon which he spared neither labour nor expense. He made fresh collations of the celebrated Alexandrine and Beza MSS. [see ALEXANDRIAN CODEX], and of other less important MSS. in England: and he had the assistance of the eminent biblical critic Wetstein and other scholars, in collating MSS. on the continent. In 1720 he published proposals and a specimen of the intended work, which was to be published by subscription, in two volumes, price three guineas for small and five for large paper. The proposals are printed in the *Biographia Britannica*, and in Dr. Monk's *Life*, ch. xv. A large number of subscribers was obtained, but from some unexplained cause, the work was never carried into publication. Many persons ascribed this to the attacks made on the author by Conyers Middleton, the historian of Cicero, a violent and implacable enemy of Bentley. From this opinion Dr. Monk dissents; and it is discountenanced by the well-known hardihood of Bentley's character, and his habitual contempt for all his adversaries.

We have still to go back to notice a work which, perhaps with the exception of the *Dissertations on Phalaris*, is the most remarkable of Bentley's labours, his edition of Horace, undertaken in 1701, but not completed till 1711. In the progress of this work he involved himself in needless difficulties; for, contrary to the usual practice of scholars, he introduced his emendations into the text, and, still more unusually, caused the text to be printed off in 1706, long before the notes were ready. Many of the alterations, it may be supposed, his mature judgment would disallow; for in the preface, he expresses his regret for more than twenty of them: and it is probable that he stretched his ingenuity to defend many others which he did not really approve. The tone of the preface is so arrogant, that Dr. Monk says, 'Bentley's character for presumption has been established by those few pages, more than by all the other productions of his pen.' An account of the plan of the work will be found in the *Life of Bentley*, ch. x. Between 700 and 800 alterations are introduced into the text, in the defence of which unusual ingenuity and a vast depth of learning are shown. Many of them have been adopted by the best subsequent editors; but the bulk of them are now rejected as unnecessary, harsh, or prosaic. Nevertheless, Bentley's Horace is a noble monument of the author's learning, critical skill, and acquaintance with the Latin language.

We can do no more than notice, and refer to Dr. Monk's *Life*, for an account of some of Bentley's minor labours, as his 'Letter on the Sigean Inscription,' published by Edmund Chishull, his revision of the 'Theriaca of Nicander,' made at the request of Dr. Mead, and printed in the 'Museum Criticum,' v. i. pp. 370. 445; an intended edition of 'Lucan,' never published, though he wrote notes on the poet, which fourteen years after his death were published at the Strawberry-hill press, attached to the text and notes of Grotius; an intended edition of 'Ovid,' meditated out of spite to Burman, and an edition of the 'Fables of Phædrus,' undertaken to revenge himself on Dr. Hare, a former friend, against whom he had conceived an offence. This was appended to an edition of 'Terence,' published in 1726, which deserves a different notice, as being one of the most honourable and unexceptionable of the author's performances. The text professes to be corrected in no less than a thousand places, and the reasons for almost every change are given in the notes. It is especially remarkable for the nicety of care in accentuation, and for the metrical skill which it displays: and contains a valuable dissertation upon the metres of Terence, which Dr. Monk characterises as the 'clearest and most satisfactory account which has yet been written of that difficult subject.' The best edition is that of Amsterdam, for which Bentley, with his usual liberality in such matters, sent the publishers an English copy with his last corrections.

In 1731, Bentley, much to the detriment of his reputation, undertook to publish an edition of the 'Paradise Lost.' He proceeded on a supposition, first started by Elijah Fenton, that Milton, by his blindness, being obliged to employ an amanuensis, his poem might reasonably be supposed to have been much corrupted, between its delivery from his own lips, and its issue from the press. There is certainly some truth in this, but Bentley pushed the theory beyond all reasonable bounds; for he created an ideal friend, whom he supposed to have filled the office of editor, and to whom he ascribes not only the numerous verbal errors, which he professes to detect, but the introduction of whole lines, and even passages of many verses. It is probable that Dr. Monk's view of the case is correct, and that Bentley invented this fiction of an editor, to take off the odium of perpetually condemning the taste and judgment of Milton himself. But in this point of view the editor's presumption is intolerable; and his self-confidence and flippant tone of criticism is equally offensive, especially when directed against a man of genius so different from his own. Bentley does not appear to have had much poetic feeling. His criticisms of Horace have been condemned as prosaic, and his criticisms on Milton display the same fault in a more eminent degree. Nor was he qualified by taste or study to appreciate the store of Italian and romantic learning which Milton in his poem has interwoven with his classical reading. Bentley thus at last gave testimony of the truth of his own saying, that no man was ever written out of reputation but by himself: his work excited almost universal dissatisfaction; resentment on the part of the admirers of Milton; distress and regret on the part of those who wished well to the editor. Nevertheless, like every thing else of Bentley's, it displays much critical acumen; and the ingenuity of the commentator might have been admired, if it had been united with a decent share of modesty.

The history of Bentley's edition of Homer belongs rather to the article Digamma: since the characteristic feature of it is an attempt to restore the prosody of Homer by the insertion of that long forgotten letter. This was a great undertaking for a man turned of seventy, for he did not begin it till the year 1732, though his opinion relative to the Digamma seems to have been made up several years before. The task was difficult; for even supposing that his views of the lost letter were strictly correct, yet the changes of orthography and language introduced in the course of many ages, so complicated the question, that often where the metre was before correct, the insertion of the Digamma rendered it unprosodiacal. Bentley did much, though he was not altogether successful. 'He corrected and noted the two poems from beginning to end; availing himself of the collations of all the manuscripts to be procured, and amending the text wherever he could, from the lexicons and grammarians. Many of the verses which were unmanageable he rejected, though the number condemned does not come near to that which a late editor, who pursued a similar plan, found it convenient to discard. The frequent changes and erasures of his own corrections which appear in his copy, prove the uncertainty and difficulty of the undertaking: independently of the lines affected by the Digamma, many others presented obstacles to the restitution of metrical propriety; and the character of Bentley's criticism, which had become more daring as his years increased, sometimes led him to harsh attempts at alteration.' (Monk, ch. xx.) Payne Knight has more recently renewed the attempt; but to say the least, without its meeting with the general acceptation of scholars. Bentley's intended work was broken off in 1739, when he had not completed the notes on the 6th book, by a paralytic stroke. Shortly before, he had published his edition of Manilius, which had been prepared for the press no less than forty-five years.

Bentley's literary career ends here. He recovered sufficiently to be able to amuse himself; and the concluding years of his life were spent in the tranquil enjoyment of the society of his family and of a few attached friends. Richard Cumberland, the dramatist, was his grandson by his daughter Joanna, and has left in his Memoirs a pleasing account of the veteran scholar's condescension and good nature. Mrs. Bentley died in 1740, and Bentley survived her little more than two years. He died July 14, 1742, and was interred in the College chapel. His library passed into the hands of his son, Dr. Richard Bentley, a man of learning and talent, but of too desultory habits to obtain eminence in any pursuit. The books were purchased after his death by the house of Lackington; from which they were re-purchased by the British Museum, it is said without any advance of price; a piece of liberality which deserves to be generally known. Bentley had one other child, a daughter, in addition to the two already mentioned.

As a scholar, Bentley stands in the first rank. It is to be regretted, for the sake of his own fame, as well as for the interest of literature, that so much of his time was occupied by disputes concerning questions of place and money. With less violent passions, less ambition, selfishness, and pride, he might have been one of the most shining ornaments of his age. But if in this article we have not been sparing in strong expressions of censure, it is right to add that he conciliated the warm affections of his family and his friends; and he who does so can scarcely be an unamiable man, when his natural temper has fair play.

There is a long article on Bentley's life in the *Biographia Britannica*, which is enlarged, we believe chiefly on Cumberland's authority, in the second edition published by Kippis. The most elaborate life of him is that recently published by Dr. Monk, now bishop of Gloucester: for which a vast mass of documents and manuscripts in the possession of Trinity College, the University of Cambridge, the Palace of Lambeth, and a variety of other sources, has been carefully examined. Monk's 'Life of Bentley' is certainly one of the most complete specimens of biography that we are acquainted with, and perhaps it would be difficult to name any scholar whose life has been written with so much research and such a scrupulous regard to accuracy, as that of the great Master of Trinity.

BENTURONG. [See ICTIDES.]

BENYOWSKY, MAURITIUS AUGUSTUS, Count de, Magnate of Hungary and of Poland, was born at Werbuena, or Verbowna, the hereditary lordship of his family, in the county of Nittria in the kingdom of Hungary, at the beginning of the year 1741. He was son of Samuel Count de Benyowsky, a general of cavalry in the emperor of Austria's service, and of Rosa, baroness of Revay, lady and hereditary countess of Thurocz. The young count was educated at Vienna, and about the court, and at the early age of fourteen, as the fashion was in those days, he entered the Austrian army. The seven years' war was then on the point of breaking out, during which the reigning empress, Maria Theresa, had to make head against Frederic the Great of Prussia.

In 1756 Benyowsky fought under the celebrated Marshal Braun in the battle of Lowositz, where the Austrians were defeated by the Great Frederic in person. In 1757 he was engaged in the desperate battle of Prague, and in the following year he fought at Schweidnitz and Darmstadt. His courage and decision of character were remarkable, and as a mere stripling Benyowsky saw more of war than many veterans see in the whole course of their lives.

In the year 1761 he was invited by an uncle, who was a magnate of Poland and Starost in Lithuania, to join him in Lithuania, and make good his rights to Polish honour, and qualify himself to succeed to his relative's property and places. It should appear from their name, that the Benyowsky family were of Polish origin. While absent in Lithuania the count's father died, on which his brothers-in-law took possession of all the Hungarian estates, which constituted the main part of his hereditary property. After having in vain summoned them to surrender the land, Benyowsky determined to take the law into his own hands, and do himself right by force, two processes which he seems to have been much addicted to all his life. He suddenly appeared in Hungary, and arming the vassals and peasantry on the estates, who were much attached to him, he began to make war on his brothers-in-law, whom he would soon have dispossessed had not the empress and the authorities of the Hungarian diet interfered, and finally obliged him to retire to Lithuania. During his domiciliation in Lithuania, which then formed the third great province or division of the Polish State, Benyowsky repeatedly memorialized the Empress Maria Theresa touching the disputed estates in Hungary, but without success. It is probable that his rights were not quite so clear to the Austrian government as they seemed to himself, and his violent mode of proceeding, and his abandonment of their military service, were not likely to conciliate that jealous and circumspect court. Soon tiring of an inactive life, Benyowsky repaired to the maritime city of Danzig, with the notion of studying navigation practically as well as theoretically. He made several voyages to Hamburg, and in 1766 sailed from Hamburg to Amsterdam, whence he came to Plymouth. Being in England in 1767, he was on the point of engaging in a voyage to the East Indies, when he received letters from certain of the magnates and senators of Poland, engaging him to return and join, in his quality of Polish nobleman, the confederation which was then forming to resist the encroachments of the Russians and the Empress Catherine, who had succeeded three years before in securing the elective crown of Poland to her former lover, Stanislaus Poniatowsky. Giving up his Indian voyage, Count Benyowsky set out for Warsaw, where he arrived in July, 1767, and took the oath required by the confederating nobles. As the moment of action had not yet arrived, he employed his leisure in making a journey to Vienna, and once more pressed his right to the Hungarian estates on the Austrian court; but his representations were useless, and he departed for Poland with a determination never again to set his foot in Austria, Hungary, or any part of Maria Theresa's dominions. On his way back, while passing through the county of Zips in Hungary, he fell sick of a fever, and was laid up for several weeks in the house of a gentleman of distinction named Hensky. His host had three daughters. During his sickness and convalescence Benyowsky made love to one of the young ladies, whom he married shortly after. He thus found himself in possession of happiness and tranquillity, but it was his fate never to remain long in such circumstances.

In the beginning of 1768, only two or three months after his marriage, the Polish confederation, known under the name of the Confederation of Barr, took up arms against Russia, on which Benyowsky, without mentioning his intention to his bride, went and joined them in the field, as he was bound to do by the oath he had taken the preceding year. At the opening of the campaign he was appointed general of cavalry. For some time the Polish confederates were everywhere successful, and the Count contributed to most of the victories. But in the unfortunate battle of Szuka, after being dreadfully wounded, he was made prisoner by the Muscovites, who treated him not as a brave and honourable enemy, but as a revolted subject or a brigand. 'I was taken,' he says in his *Memoirs*, 'prisoner in open war, after having received in all, during the campaign, seventeen wounds.' The Russians loaded him with chains, and threw him, with eighty of his comrades, into the dungeon of a fortress, that had no light or air except a little that straggled through a chink which opened upon the casemates. In consequence of no attention being paid to their wounds, and of the closeness and foulness of the atmosphere, thirty-five of the patriots died during the twenty-two days he was kept there. From this dreadful confinement Benyowsky was marched with a large body of Polish prisoners to Kiew, and thence to Cazan, in the interior of Russia. While at the latter city, some Russian noblemen, who had organized an extensive conspiracy against the Empress Catherine, seeing the influence he possessed over the minds of the Polish prisoners, who far outnumbered the Muscovite garrison of the place, treated privately with Benyowsky in order to induce him to join in their plots. According to the Count's own relation of these transactions, though he takes credit to himself for caution and prudence, he had many interviews with the conspirators, among whom were many of the Russian clergy, and actually engaged to join his arms to theirs in case they should be successful in their first rising at Cazan, and should give him and his Poles the necessary weapons, ammunition, and appointments. Nearly all his biographers have overlooked these facts, which certainly go to account for Catherine's implacable enmity towards him, though they neither excuse her brutality, nor, considering the position in which he stood, cast any moral stain on his character. Benyowsky was not Catherine's subject; he was a prisoner of war; and the barbarous treatment he received justified whatsoever effort he might make to regain his own and his countrymen's liberty.

A sudden quarrel between two of the conspirators, two Russian lords, upset the whole plot, for one of these men, in order to ruin the other, went and denounced it to the governor of Cazan. Benyowsky was accused, but escaped at midnight from the quarters assigned to him, just as the soldiers entered the house to drag him before the confounded and enraged governor. A major of the Polish army was the companion of his flight, which Benyowsky managed throughout with wonderful address and talent. Instead of attempting to hide himself in the provinces, he determined to go straight on to the crowded capital, where he fancied he could lie concealed until some foreign vessel should be found to carry him out of Russia. According to his own showing, his thorough knowledge of this defeated conspiracy and of the persons engaged in it, greatly facilitated his escape, for several noblemen, whose estates lay on his road, did all they could to help him, fearing that if he were caught by the government, he might make disclosures fatal to themselves. After many curious adventures he reached St. Petersburg, where he hired apartments in an hotel, making his companion, the major, pass himself off as his valet-de-chambre. The system of *espionnage* established by the Empress Catherine was almost perfect, yet Benyowsky was well nigh mocking all its vigilance. Looking about him for a trustworthy man, he became acquainted with a German apothecary, who negotiated a passage for him and his friend with the master of a Dutch vessel then at St. Petersburg. The Dutchman agreed to receive them on board and smuggle them out of the harbour, and as he said he was ready to sail early the following day, he appointed to meet the Count on the bridge of Neva at midnight. Benyowsky repaired with the major to the spot at the time appointed, and there impatiently expected the captain, who presently appearing, saluted them, and begged them to stay where they were for a few minutes while he went to despatch his last business with his merchant. They waited, nor did the captain fail to return. As he came on the bridge he beckoned to the Count, who went to meet him, but at the moment he was about to express his gratitude to the Dutchman for saving him from slavery or death, twenty Russian soldiers knocked him down, seized him and his friend, and carried them to the lieutenant-general of police, who, well knowing who they were, subjected them to a long and brutal examination. Benyowsky tells us himself that this examination principally turned on the conspiracy of Cazan, on the part he had taken in it, and on his knowledge of the Russian nobles engaged in it. He says his sense of honour and humanity determined him to give no evidence on this head, and that, at a subsequent examination, the Russians threatened to force confession from him by the rack and torture. Eventually, however, he was given to understand, that by engaging never more to enter her imperial majesty's dominions, and never again to bear arms against her or any of her allies, he should be permitted to leave the country. Having signed a solemn engagement to this effect, he was put into a rude carriage, which set off under a strong escort of Cossacks. At first he thought they were conveying him to the frontiers, but he soon discovered to his horror that his destination was Siberia, where Catherine had already consigned thousands of the Poles, and among them several princes, magnates, and Catholic bishops, which last had taken an active part in the confederations of Thorn and Barr, and excited the Poles of the Roman church against the Russians of the Greek church.

Under every change of his fortunes Benyowsky had the valuable art or natural faculty of interesting people in his fate, and of making friends among all kinds of men. On his way from Tobolsk, the capital of Siberia, to Tomsky, he won the affection of a roving Tartar, a dealer in furs, who was in the habit of trading with the Chinese settled near the banks of the Amoor. This man proposed to the Count that he should elude his guards and escape with him across the great deserts of Tartary to China. Benyowsky, who was destined to escape to the celestial empire by water, listened eagerly to the friendly Tartar's project, but the sad state of his wounds, which, never having been properly attended to, were still open, and the prospect, in such a state, of a land journey of three hundred leagues, made him give it up in despair.

From the town of Tomsky Benyowsky was sent on to the river Yenisei through a desert country, in passing which his escort lost, through fatigue and hunger, eight Cossacks and twelve horses. He now learned that the place of his exile was not in any part of Siberia, but in the still more savage country of Kamtchatka. On the 16th of October, 1770, the exiles reached Okhotsk, where they embarked to perform the remainder of the journey by water. During the voyage across the ocean the Count's exertions and nautical skill saved the ship from wreck. They did not arrive in Kamtchatka until the 2d of December, and they were no sooner there than Benyowsky, who had conferred with many other exiles during the journey, and obtained some geographical information, resolved to attempt his escape by way of Japan or China. His plans were facilitated by the unsuspecting Russian governor, who engaged him to teach the Latin, French, and German languages in his family. Aphanasia, a beautiful girl of sixteen, the governor's youngest daughter, for whom he tells us he constructed a musical instrument, fell in love with him, and cherished her passion, not knowing that the Count was a married man. When all his plans for escape were matured, and a vessel obtained on the coast, the poor girl discovered the whole plot, but she would not betray her lover, though her concealment in the end led to the death of her father, who was killed in an attempt to put down the revolted exiles. Nay, even after that event, and when she was informed by one of his enemies that Benyowsky had a wife in Hungary, her infatuation still continued, and she resolved to accompany him on his perilous voyage. After a number of adventures and narrow chances of failure, having thoroughly repaired their vessel, and salted twenty-two bears for sea-stock, on the 11th of May, 1771, Benyowsky set sail from Kamtchatka with eighty-five men, who were nearly all exiles, and some few of them people of rank like himself. In the month of September in the same year, the ship, carrying an Hungarian flag, arrived at Macao in China. The voyage had been very disastrous; for two months they had suffered hunger and thirst; only sixty-two of those who had embarked were alive, and of the sixty-two only some ten or a dozen could stand upon deck. Aphanasia was among the dead. In China Benyowsky found two ships of the French East India Company, in which he embarked with all his people, having determined to seek employment at the court of France.

During the homeward voyage he spent a fortnight at the island of Madagascar, and this circumstance influenced the rest of his life. In the month of August, 1772, he reached France, where he was joined in December by his wife from Hungary. At the end of the same year the French government engaged him to form an establishment in Madagascar, and on the 14th of February, 1774, he arrived in that island, where he soon ingratiated himself in a wonderful manner with the natives in the neighbourhood of the bay of Anton-Gil, on which he fixed his little colony. He, however, imprudently engaged with these allies in their wars with some of the other people of Madagascar, and seems eventually to have abandoned his old plan of forming merely a commercial settlement for the more ambitious project of making conquests in the island. In his *Memoirs* he lays the whole blame of this change of views on the French ministry, who, he says, sent him orders to establish his unlimited superiority by force. What is certain is, that M. de Kerguelen, a naval commander, landed the crews of his ships; that then a destructive and barbarous warfare was carried on against the blacks of Madagascar; and that almost as soon as the ships withdrew, the blacks drove Benyowsky and his companions from the island, and destroyed his establishment, which had existed for nearly five years.

Disgusted with the French, he quitted their service, and again accepted a command in the Austrian army. But the visions of wealth and absolute freedom and independence in the great African island still pursued him, and on December 25, 1783, he presented proposals to the British government to found a colony in Madagascar on their account, stating in his memorial that the chiefs and people of that country had appointed him their supreme head. With this curious document his *Memoirs* (the MS. of which, written in French, is preserved in the library of the British Museum) come suddenly to an end; nor do we learn from his own pen what degree of countenance the English government gave him. It should appear, however, that he had no authority given him to use the king of England's name, or to carry his flag, and that the assistance which he received in this country was merely from private individuals, and the friends he everywhere gained. His ardour was not damped by this want of government encouragement, and he resolved to return to Madagascar.

The accounts of the last adventures of this extraordinary man are given in rather different ways. The difference, however, is not great, and all his biographers agree as to the circumstances of his end. We adopt, as most authentic, the details given by the English editor of his *Memoirs*, Mr. W. Nicholson, who looked into the subject with a very careful eye, examining a great mass of documentary evidence, and consulting the parties engaged in the expedition.

Having obtained some co-operation and credit in England, Benyowsky, with his family and a few associates, sailed for Maryland, in the United States, on the 14th of April, 1784, on board the Robert and Ann, which ship also carried a cargo belonging to the adventurers, worth about 4000*l*. His reasons for visiting America, and not going to Madagascar direct, appear to have been these: he could get no European flag to cover his expedition; and he thought he might obtain a flag and an extensive co-operation from the enterprising citizens of the United States, whose independence as a nation had been fully recognised by England in the month of September of the preceding year, 1783. And, in effect, a respectable house of Baltimore was induced to enter into Benyowsky's schemes, and supplied the Count with a ship of 450 tons burden, armed with twenty 6-pounders and twelve swivels. The same merchants also furnished stores and part of a cargo to trade with. Every one on board took an oath of discipline and obedience to the Count, but a supercargo, named by the merchants, went to take care of their goods and interests. This ship, which was called the Intrepid, sailed from Baltimore, for the harbour of St. Augustine, on the east coast of Madagascar, on the 25th of October, 1784. On account of the pregnancy of Madame Benyowsky, the count left his family behind him in America. The voyage, from the beginning, was a slow and unlucky one. In the early part of January, 1785, the Intrepid made the coast of Brazil, whence Benyowsky wrote the last letter his friends ever received. About a month afterwards the ship ran aground at the island of Juan Gonsalvez, and it was not before April that she was got off and made sea-worthy. Benyowsky then stood across the Southern Atlantic for the African continent. He doubled the Cape of Good Hope, without putting into port there, and after touching and resting for a short time at Sofala, he at last (on the 7th of July, 1785) cast anchor at Madagascar, in the bay of Antangara, ten leagues to the S.W. of the bay of St. Augustine. He there disembarked with his immediate associates, and began to unload part of the cargo, consisting, probably, of the four-thousand-pounds'-worth he had brought from England. It is then stated that Lamboin, king of Northern Madagascar, whom he had known on his former visit, came to pay his respects, and that a body of the race or tribe called Seclaves, under their chief or king, came also and encamped near to Benyowsky; that the Count proposed to enter into the solemn compact or oath of blood with the Seclaves, and that their chief declined on the pretext of being much fatigued by his journey. From the protest of the master of the American ship, it should further appear, that on the night of the 1st of August, between the hours of ten and eleven, a heavy firing was heard and seen exactly at the spot where the Count had encamped; that between five and six on the following morning a few scattered shots were heard in a small wood about a mile up the country; that at daylight no signs were perceived of any white men on shore; that all the effects they had landed had been removed; and that, lastly, seeing their own dangerous position, with few hands, and a want of arms and provisions, the people on board the ship weighed anchor and stood away with all speed for the island of Johanna. From Johanna they went to Oibo, where the supercargo sold both ship and cargo for the benefit of the underwriters. From this protest it should seem that Benyowsky met his death at the hands of the savages, but as the contrary is known beyond a doubt, entire discredit is thrown on the ship-master's evidence. Mr. Nicholson saw a letter from one of the persons on board the ship, which states that the writer and another individual were not at all convinced that the firing they heard on shore proceeded from the natives and that they signed the master's protest 'because they were overborne by numbers.' And in another letter from an officer who was carried prisoner to the Isle of France after the ascertained final destruction of the Count's party, Mr. Nicholson found, indeed, mention of a firing heard by night, but, contrary to the master's protest, this officer affirmed that the ship, to their great astonishment, sailed away in sight of those on shore, who in vain pulled after her in the boats or canoes of the country. The writer of the same letter stated, that fifteen days after the vessel had abandoned him, the Count departed for Angoutci, leaving most of his people behind, to follow him; that all his men fell sick soon after and died, with the exception of two, who remained with him to the last.

But though thus abandoned, the resources of this extraordinary man did not fail him. He put himself at the head of an armed force of the natives, and seized the magazines and warehouses of the French, who, to the annoyance of the Madagascar savages, had formed more than one establishment on the island. He then busied himself in erecting a town, after the fashion of the natives, near to Angoutci, whence he sent a detachment of a hundred blacks to take possession of the French factory at Foul Point; but this expedition was frustrated by a French frigate that came to anchor off the said point. In consequence of these movements, the governor of the Isle of France sent a ship to Madagascar with sixty French soldiers, who landed and attacked the Count on the morning of the 23rd of May, 1786. Benyowsky awaited their approach in a small redoubt he had thrown up, with two small cannons, two Europeans, and some thirty or forty natives. The blacks fled at the first fire of the French, and the Count having received a ball in his right breast, fell behind the parapet, whence he was dragged by the hair, and expired a few minutes after, in the forty-fifth year of his age.

(*Memoirs and Travels of M. A. Count de Benyowsky, written by himself.* Translated from the original MS. 2 vols. 4to. London, 1790.)

BENZAMIDE. Benzoic acid is supposed to contain an inflammable compound body, which has been termed *benzule*, and is composed of 5 equivalents of hydrogen, 2 of oxygen, and 14 of carbon: this compound is capable of combining with sulphur, chlorine, and some other elementary bodies. The chloride of benzule absorbs ammoniacal gas, with the extrication of much heat. By complicated affinities a white solid is formed, which, after saturation with ammonia, consists of benzoate of ammonia and *benzamide*, so called because it bears to benzoate of ammonia the same relation that *oxamide* bears to oxalate of ammonia; by cold water the benzoate of ammonia is deposited, and the benzamide remains unacted upon.

Dr. Turner represents benzamide theoretically as a compound of benzule and dinituret of hydrogen, but he remarks that other hypotheses may be formed respecting its constitution.

Benzamide has the following properties: it fuses into a limpid liquid at 239°, which concretes into a foliated mass on cooling: when strongly heated it boils, and volatilizes unchanged. Cold water dissolves only a little, but boiling water takes it up readily and without decomposition; alcohol and boiling æther both dissolve it; it crystallizes in pearly rhombic prisms; a cold solution of potash does not decompose it, but when they are heated together, ammonia is evolved and benzoate of potash is left; it is also decomposed by boiling sulphuric acid.

In whatever way the elements of benzimide may be combined, it is represented as consisting ultimately of 7 equivalents of hydrogen, 2 of oxygen, 14 of carbon and 1 of azote.

BENZINE. When one part of benzoic acid was mixed with three parts of hydrate of lime and subjected to distillation, M. Mitscherlich obtained a fluid having the following properties, and to which the name of *benzine* is given. It is limpid, colourless, of a peculiar odour, and its density is 0·83; it boils at 187° Fahr.; it congeals in ice into a crystalline matter; it is slightly soluble in water, but readily so in alcohol and æther. The density of its vapour is 2·77. Its composition is similar to that of the solid compound of hydrogen and carbon discovered by Faraday. Its action upon chlorine and nitric and sulphuric acid is very peculiar.

BENZO'IC ACID. This acid, as its name imports, is usually obtained from the resinous substance called gum benzoin or benjamin; it occurs also in some other vegetable bodies, as the balsam of Peru and of Tolu, storax, and in the flowers of the *trifolium melilotus officinalis*. It is found also in the urine of the cow, horse, and other herbivorous animals, and also in that of children.

It may be prepared from benzoin either by sublimation or by precipitation; the former method is employed in the London, and the latter in the Berlin Pharmacopœia. The process of sublimation is perfectly simple: the benzoin being subjected to a moderate heat in a proper vessel, the benzoic acid rises in vapour and is condensed in the upper and cool part of it. As thus obtained it is mixed with a considerable quantity of empyreumatic oil, which gives it both colour and smell; the greater part of this oil is separated by absorption and pressure, and the acid being then resublimed, retains but little, and rather an agreeable odour; it is frequently called *flowers of benzoin* or of *benjamin*.

In the Berlin Pharmacopœia four parts of benzoin, reduced to powder, are first digested and then boiled in water, with nine parts of carbonate of soda; the solution of benzoate of soda thus formed is decomposed by sulphuric acid, which, combining with the soda, separates the benzoic acid, the greater part of which is precipitated, owing to its slight solubility.

Benzoic acid may also be precipitated by muriatic acid from the evaporated urine of the cow, and some other animals, and also from the water which runs from dunghills. The acid has a disagreeable smell, which may be nearly got rid of by boiling it in water with animal charcoal. When fat and tallow are distilled an empyreumatic product is obtained, which if boiled with powdered chalk in water, yields benzoate of lime, and this, upon the addition of muriatic acid, gives benzoic acid; it results from the decomposition of the animal matter, was formerly supposed to be a peculiar acid, and from its origin was called *sebacic acid.*

The properties of benzoic acid are, that when pure it is colourless; it crystallizes in soft and rather elastic crystals, which have scarcely any smell; its taste is rather aromatic and penetrating than sour; by exposure to the air it undergoes no change; it requires two hundred times its weight of cold or twenty-four of boiling water for solution; on cooling, a crystallized mass is obtained, which resembles fat in appearance; alcohol takes it up readily and in large quantity; prismatic crystals are procured by the spontaneous evaporation of the spirit. The aqueous solution acts but feebly upon litmus paper; it combines readily with alkalis, earthy and metallic oxides, forming salts which are called *benzoates.*

Benzoic acid fuses and sublimes at a gentle heat, but a part of it is decomposed by the process; if strongly heated it takes fire and burns with a bright yellow flame; when mixed with sand and heated, it yields more combustible gases than any other substance; it dissolves in sulphuric and nitric acid without being decomposed.

Benzoic acid is a compound of hydrogen, oxygen and carbon; but according to the experiments of Wöhler and Liebig, *(An. de Chimie et de Physique,* li. 273*)* it is to be considered as the oxide of a compound inflammable body, which they term *benzule;* this is composed of 5 equivalents of hydrogen=5, 2 of oxygen=16, and 14 of carbon=84, its equivalent is consequently 105; *anhydrous* benzoic acid consists of 1 equivalent of benzule 105 + 1 equivalent of oxygen=8, its equivalent being 113; but the *crystallized* benzoic acid contains in addition 1 equivalent of water, making its equivalent 122: this water cannot be separated by heat, and it exists in the benzoate of lead, but not in that of silver, which is anhydrous.

The saline compounds of benzoic acid are not very important; the alkaline and earthy salts are generally soluble in water, and so also are some of the metallic benzoates, especially those of manganese, nickel, and cobalt, while the perbenzoate of iron is insoluble; advantage has been taken of this property to separate peroxide of iron from the oxides above named. For this purpose it is requisite that the iron should be entirely in the state of peroxide; the solution should contain no excess of acid, and the benzoate should be perfectly neutral; when these precautions are duly observed, a pale red insoluble perbenzoate of iron is precipitated, which is stated to be separable by hot water into a soluble supersalt and an insoluble subsalt.

The benzoates of lead, mercury, and silver are among the more insoluble salts of this acid; when the benzoate of ammonia is added to a solution of nitrate of silver, a white pulverulent anhydrous benzoate of silver is precipitated; it is, however, completely soluble in boiling water, and is deposited as the solution cools in brilliant foliated crystals.

BENZOIC ACID is obtained from several sources, such as from benzoin by sublimation, or by precipitation, for lime and the fixed alkalies extract it from benzoin, and from these it can be separated by the addition of an acid. It is also obtained from balsams, of which it is an essential constituent; from certain fragrant substances, such as vanilla, canella bark, ambergris; from some grasses, and the agaricus volvaceus. It exists in the form of a benzoate in the urine of infants, in that of many herbivorous animals, of the beaver (*castor fiber*), and even of the dog.

There is some difference in the qualities of the acid, according to the source whence it is obtained: for medical purposes the acid procured from benzoin by sublimation, and termed 'flowers of benzoin,' should alone be used.

Sublimed benzoic acid occurs in white, needle-like prisms, which, when in mass, have a flocculent appearance, with a soft, silky lustre. The odour is said to be owing to a little empyreumatic oil; the taste is at first sweetish, but afterwards very pungent; the specific gravity is 0·657. Its acid quality is manifested by reddening turmeric paper; it is scarcely soluble in water, whether warm or cold; it is completely soluble in alcohol: it therefore enters into the composition of the *Tinctura camphoræ composita* of the *London Pharmacopœia,* and the *Tinctura opii ammoniata* of the *Edinburgh Pharmacopœia,* two preparations long known under the name of paregoric elixir. The use of these requires care and judgment. [See BALSAMS.]

Benzoic acid has been recommended to be inhaled with the vapour of water in consumption and spasmodic asthma. In the former of these diseases it is of no efficacy, and in the latter of very little. Benzoic acid, combined with extract of conium, forms a useful expectorant in the humid asthma of old or feeble persons.

BENZOIN or **BENJAMIN**, a resinous substance commonly but improperly termed a gum. It is extracted from the *Styrax benzoin,* which grows in Sumatra, by making incisions in the trunk. It hardens very quickly, and is imported in the state of brittle masses, which when fractured present a mixture of white, brown and red grains, frequently as large as an almond. The fracture of benzoin is conchoidal, and the lustre is greasy; its specific gravity is from 1·063 to 1·092. Its smell is agreeable, resembling that of vanilla. It melts at a moderate heat, and yields benzoic acid, of which it contains about eighteen per cent.

According to the analysis of Unverdorben, benzoin contains, besides benzoic acid and a little volatile oil, three different resins. If benzoin be reduced to fine powder, and boiled in an excess of a solution of carbonate of potash, the benzoic acid, and a resin are dissolved, which may be precipitated together by muriatic acid; when the precipitate is boiled in water, the acid and a little extractive matter are dissolved, and the resin is left, amounting to about 0·03 of that of the benzoin; this resin is of a deep brown colour: it is soluble in concentrated alcohol, but slightly so in æther and volatile oils, and insoluble in the oil of petroleum. This resin is weakly electro-negative; it does not decompose acetate of copper, but precipitates acetate of lead; carbonate of potash dissolves it but slowly. The compound of this resin with potash is soluble in anhydrous alcohol but neither in æther nor in oil of turpentine. The aqueous solution is precipitated by muriate of ammonia. The greater part of benzoin is insoluble in solution of carbonate of potash, and it leaves a bright brown residue; from this æther extracts one resin and leaves another. When the æther is evaporated, the resin dissolved in it remains. It is very soluble in alcohol and in oil of caraway, but not in oil of petroleum. It does not decompose acetate of copper: it dissolves readily in potash, and is not precipitated from solution by excess of it. Ammonia does not dissolve it; its compounds with earthy and metallic oxides are insoluble in æther.

The resin, which is insoluble in carbonate of potash, and remains unacted upon by æther, is brownish. It is soluble in alcohol, but not in the volatile oils nor ammonia. Potash dissolves it readily, but a great excess of the alkali precipitates the compound which is formed. This and the former resin, when precipitated by an acid from solution in potash and exposed to the air while moist, are converted into the first resin, or that which is dissolved by carbonate of potash and alcohol. If the two last resins be subjected to dry distillation, they yield at first a volatile oil, which is very slightly empyreumatic, and which, like the oil of bitter almonds, is converted by the action of the air into benzoic acid.

Benzoin is employed in the preparation of benzoic acid; it is also used by perfumers.

BENZOIN is improperly called a gum, since it is quite insoluble in water, and appears to be intermediate between resins and balsams. It is a natural production of several plants, but is yielded only by one in sufficient quantity to be worth collecting. The *Styrax benzoin,* of Dryander, or *Lithocarpus benzoin,* as it is called by Blume, was ascertained by the former of these naturalists to be the source of this substance, and was described and figured by him in the *Philos. Trans.* of 1787, vol. lxxvii, p. 307, t. 12. Previous to his time it was supposed to be obtained from the *Laurus benzoin,* though Linnæus had pointed out the incorrectness of this opinion, and from the *Terminalia angustifolia* (Jacq.), which possess the odour, but yield little of the substance. The odour is also imparted by some grasses, such as the *Anthoxanthum odoratum* (sweet-scented vernal meadow grass), and the *Holcus odoratus* (sweet-scented soft grass), to which hay owes its fragrance when drying.

The benzoin of commerce, sometimes called *Asa dulcis*, and vulgarly termed *Benjamin*, is obtained solely from the *Lithocarpus benzoin*, a tree growing in Sumatra (see Marsden's *Sumatra*, i. 233), Borneo, Java, &c., from which it flows spontaneously in small quantity, but is obtained in greater abundance by making incisions in the stem beneath where the branches are given off, as soon as the tree has attained the age of five or six years. These incisions are repeated every year for about twelve years, when the tree becomes exhausted: each tree yields annually about three pounds. When it first flows from the tree it is soft, but gradually hardens by exposure to the air. The finest kind, which is whiter, and often in grains, flows from the youngest trees; this is called *Benzoe amygdaloides*. The benzoin which is met with in commerce is generally in cakes or fragments of different sizes, of a yellowish or fawn colour, covered with a whitish powder, intermixed with pieces of wood or leaves. When broken it exhibits a vitreous fracture, presenting portions of an almond-like shape, which are whiter than the surrounding portions, transparent, and friable. The more of these white pieces that occur in any specimen, the more it is esteemed: from exposure to the air they assume a yellowish hue. An inferior kind, called *benzoe in sortis*, is grayish brown, of a dull aspect, not transparent, with many portions of wood and bark intermixed with it.

Benzoin is of the specific gravity of 1·063, is friable and easily powdered, during which process it causes sneezing, has an agreeable balsamic odour, and tastes at first sweetish, afterwards balsamic and stimulating. It melts at a moderate degree of heat, and evolves a white smoke and pleasant odour. The fumes which arise consist of benzoic acid, which may be easily condensed in a white flocculent mass, called flowers of benzoin. The odour is attributed by Dr. Thomson to the presence of a volatile oil, which accompanies the acid.

Benzoin is entirely soluble in alcohol and ether, but insoluble in fixed or volatile oils. Its alcoholic solution added to water, becomes of a milky appearance.

Stolze analyzed the white and brown kinds, and found them to consist of—

	White Benzoin, 100 parts.	Brown Benzoin, 100 parts.
Yellow resin, soluble in ether	79·83	8·80
Brown resin, insoluble in ether	0·25	69·73
Benzoic acid . . .	19·80	19·70
Extractive . . .	0·00	0·15
Impurities . . .	0·00	1·15
Moisture and loss . .	0·12	0·17
A trace of volatile oil.		

In its action on the system benzoin resembles the other balsamic resins, being stimulant and exciting, as well as improving the quality of the secretions of the mucous membrane of the lungs. It was formerly employed as an expectorant in chronic catarrh and in asthma; and it may occasionally be serviceable when, from deficiency of nervous energy, expectoration is difficult, and an accumulation of mucus takes place in the lungs. It cannot fail, however, to prove hurtful if such accumulation arises from difficult circulation through the lungs, connected with organic disease of the heart, which is frequently the source of the spasmodic symptoms called asthmatic. It has also been recommended in cases of imperfect development of cutaneous eruptions, but it cannot be relied on in such cases.

In the present day it is chiefly employed to yield benzoic acid, and as an ingredient in pastilles, or to burn in censers in Catholic churches. It enters into the composition of the *Tinctura benzoini composita*, the use of which is mostly confined to old ulcers: its application to recent wounds is very improper. [See BALSAMS.] A solution of benzoin in alcohol, added to twenty parts of rose-water, forms the cosmetic called Virgin's milk.

BENZONE. A compound of hydrogen, oxygen, and carbon, obtained by Mr. Peligot from the action of lime on benzoic acid. Its properties have been but little investigated. *

BERAR. A large province of the Deccan, or south of Hindustan, between 17° and 23° N. lat., and 75° and 83° E. long. This province or state is under the protection of the English government in India, and governed by a native sovereign, known sometimes as rajah of Berar, but more commonly as rajah of Nagpore. Berar was formerly of much greater extent than it is at present. Major Rennell thus describes the possessions of the rajah as they stood in 1788. 'The Berar or Nagpore rajah, Moodajee Boonslah, possesses the principal part of Berar, together with the province of Orissa. The remainder of Berar is held by the Nizam, or Soubahdar of the Deccan, who pays a *chout*, or fourth part of its clear revenues to Moodajee. On the west and south, the Berar dominions border on, or are intermixed with those of the Nizam: on the north-west and north are the provinces of Bopaul, Gurry-Mundella, &c. tributaries of Poonah; together with the territories of Adjid Sing. On the east, the Nagpore territories thrust themselves between the British possessions in Bengal, and those in the northern Circars, so as to occupy near 180 miles of the country adjacent to the sea; and of course to break the continuity of their possessions on the sea-coast. Moodajee's dominions are very extensive, being in length from east to west 550 British miles, and in some places 200 from north to south.'

At present the rajah's possessions are bounded on the north and east by part of the British dominions under the presidency of Bengal, consisting of the province of Gundwana, and a territory known as 'the ceded districts on the Nerbudda;' on the west are the Nizam's dominions, and on the south Aurungabad and Beeder. Its greatest length from north to south is about 290 miles; the mean length is not above 150 miles; its greatest breadth from east to west is 240 miles, and the mean breadth not above 140 miles.

This reduction of territory has been brought about at different times since the beginning of the present century. By the treaty of Deogaum in December, 1803, the English acquired from the rajah the province of Cuttack, including the port of Balasore. This cession served to connect the Bengal provinces with the northern Circars subject to Madras, an object which had long been considered desirable. The rajah further ceded the provinces of Sumbulpore and Patna, which were subsequently restored to him, and he also gave up some districts on the Hyderabad frontier, which were made over by the British to the nizam. In 1809 Berar was invaded by Ameer Khan, a Patan chief, at the head of a numerous body of undisciplined and licentious troops, but he was obliged to retire on the advance of two detachments of English troops to the rajah's assistance. On that occasion a negociation was opened for a subsidiary treaty with Berar, but it was not until after the death of the then rajah in 1816 that an alliance of that kind was contracted.

In 1817 the rajah, Appah Sahib, joined the Peshwa in hostilities against the English government. Their forces were, however, speedily dispersed; the rajah was taken prisoner, and sent under a military escort to Bengal, but while on his march he made his escape. After wandering about from place to place for many years, he has recently taken up his residence at Joudpore. 'He of course forfeited his throne,' and the government of his dominions was thereupon established in June, 1818, in the person of Bajee Rao Booslah, then a minor. On this occasion a portion of the country was retained by the English in lieu of a pecuniary subsidy, and the remainder was administered by British officers, under the superintendence of the East India Company's political resident at the court of Nagpore. This state of things continued during eight years and a half, when the rajah having arrived at years of maturity, was put in possession of part of his territory of the estimated yearly value of 26 lacs of rupees (260.000*l.*), the remaining portion, which yielded 17 lacs (170,000*l.*), being retained under English management as security for the payment of that part of the rajah's army which had been disciplined and was officered by Englishmen. These districts have since been given up to the rajah, under an arrangement concluded with him in December, 1829, which provided that, instead of his furnishing a contingent of 3000 horse and 2000 foot soldiers, he should maintain a force of only 1000 horse, and pay an annual tribute to the East India Company of 8 lacs of rupees (80,000*l.*) In thus withdrawing from the actual management of the state, the Company's government has stipulated that in case of any gross misrule or oppression being exercised towards his subjects on the part of the rajah (it is not provided who is to judge when this case shall arise), that government shall be at liberty to resume the management, through its own officers, of districts in which disorders may have been produced by harsh and oppressive acts.

Berar stands on a high level, the approach to which is by a chain of ghauts or mountain passes, which give to the inclosed province the character of a valley. The geographical details of this country are hitherto but imperfectly known. One part of the ghauts here mentioned was examined by European officers in 1816, that service having been undertaken in consequence of the passes which they contained serving for the predatory incursions of bodies of Pindarries. It is said that the general character of the entire surrounding range is similar to the part thus surveyed, which comprehended an extent of nearly sixty miles. The part examined is represented as being 'a succession of high grounds, with here and there a small peak visible above the rest; the deep breaks and ravines, which lead in some places to a gentle, and in others to a more abrupt descent into the valley of Berar, being only perceived when nearly approached. Some of these ghauts are impassable for carriages, laden camels, or bullocks; some for horses, and some are mere hill-paths. The surface of the hills in this section of the chain is covered with loose stones and low jungle, and but little cultivation is seen; neither is there any timber large enough for building.' In 1816 a great proportion of the villages near the hills that were surveyed were found to be deserted, the tract of country being desolate and apparently unappropriated. In the early part of the present century, before the cessions made under the treaty of Deogaum, the whole of Berar was so thinly inhabited, as to contain only 2,500,000 in a territory of 70,000 square miles. A very large proportion of the country is even now in the hands of people who are called 'wild Zamindars,' and whose connexion with the government consists only in their paying small quit-rents.

The principal rivers of the Berar are the Tuptee, the Wurda, the Wynegunga, and the Mahanuddy. The Tuptee rises in the Nyardy hills, near the fortified town of Baitool, in 21° 55′ N. lat., and 78° 4′ E long., 56 miles E.N.E. from Ellichpore. It flows thence in a westerly direction, and passing through the provinces of Candeish and Gujerat, falls into the sea about twenty miles south of Surat. The Wurda rises in the pergunnah of Mooltye, and flowing south-south-east, forms the boundary between Berar and the dominions of the Nizam. It joins the Wynegunga at Seouny, a short distance below Chanda. The Wynegunga has its source in the district of Seouny Chapparah, 1850 feet above the level of the sea. It passes through the town of Chapparah, in 22° 24′ N. lat., and 79° 58′ E. long., and flowing south through the towns of Bundara and Ambora, traverses the western division of Berar, and falls into the Godavery near Chinoor. The Mahanuddy rises in the high lands about thirty miles to the eastward of Kakair. It flows to the north by Conkair and Dhumderee through the district of Choteesghur, and enters Sumbhulpore a few miles east of Sri Narrain. The Mahanuddy is navigable between July and January from the eastern districts of the province to Cuttack. With this exception, Berar is without any navigable stream. The Wurda and Wynegunga are rendered unavailable in this respect by the rapids and numerous rocks which they present. The Wynegunga is sometimes used for transporting timber in the rainy season.

The province is subdivided into nine districts, viz.:—Beytulbarry, Gawelghur, Kullum, Mahore, Maihker, Nagpore, Nernallah, Waussim, and Wynegunga.

Beytulbarry is of small extent, situated south of the Ajuntee Ghaut, between the twentieth and twenty-first degree of north latitude. But little is known of this district. The town of Ajuntee is the only place of any note which it contains. This town, which is fortified, is in 20° 34′ N. lat., and 75° 56′ E. long., and stands on table-land near to an important pass through the Berar mountains: the place is thinly inhabited. Gawelghur is of considerable extent, and situated about the twenty-first degree of N. lat. To the north-east the surface of the country rises into hills of considerable elevation; the other parts of the district, which are less hilly, are intersected by numerous small streams, which render the soil productive. Gawelghur, the capital of the district, is a fortified town, in 21° 22′ N. lat., and 77° 24′ E. long., built on a high rocky hill in a range of mountains which divide the sources of the Tuptee and Poonah rivers. Kullum, as to which district we know very little, lies between the nineteenth and twenty-first degrees of N. lat., and is bounded on the east by the river Wurda. The district of Mahore has not been described by any modern authority. The fort of that name, which is situated in 19° 54′ N. lat., and 78° 8′ E. long., is said by Abul Fazl to be 'very pleasantly situated upon a mountain, and near it is a Hindu temple, called Jugdeena, dedicated to Doorga.' Maihker is a small district above the Ghauts, between the twentieth and twenty-first degrees of N. lat. The town of Maihker stands among the hills, in 20° 6′ N. lat., and 76° 50′ E. long. The district of Nagpore, with its capital, will be separately noticed. [See NAGPORE.] Nernallah is situated above the chain of mountains which extend from Ajuntee to the river Wurda. This district is thinly peopled and indifferently cultivated; it is watered by the Puma, and a great number of small tributaries which flow from the mountains. The town of Nernallah is mentioned by Abul Fazl as 'a large fort, containing many buildings, and situated on the top of a mountain.' Waussim is situated above the Ghauts. The principal town, Waussim, is in 20° 10′ N. lat., and 77° 22′ E. long., and eighty-three miles E.N.E. from Julna, the capital of Julnapore district, in Aurungabad.

The Wynegunga district, so named from the river by which it is intersected, has never yet been surveyed, and its area is unknown. This district occupies a part of the western division of the province; that portion which lies on the west side of the Wynegunga river is for the most part hilly, and is occupied by the 'wild Zamindars' already mentioned: this part of the district is very imperfectly cultivated, owing to the extortions practised upon the ryots. On the east side of the river, where the authority of the rajah is more directly exercised, and the cultivators have the fruit of their labour better secured to them, the whole country is brought under culture. The numerous ruins of towns, forts, and tanks in this district show that it was once much more peopled than at present. While under the direct management of the English, the number of inhabited villages in this district was ascertained to be 2111, and the total population 690,770 persons.

The more settled or civilized parts of the province of Berar are connected with the government by the system known in India as the village settlement. Under this system, each village (comprehending under that description the farms within a given district) contains a head man called the potail, with whom the government arranges the amount of rent to be paid in each year by the ryots or small farmers. In Berar, the office of potail is usually considered to be hereditary, but the government claims the power of dismissal. The sums demanded by the government of the rajah vary from year to year according to the necessities of the state, and are exacted from the potails, by whom they are collected from the ryots in proportions determined by a sort of rent-roll, in which the supposed value of every field in the district is set forth. The aggregate payments made by the cultivators are to a greater amount than is demanded by the government, the difference constituting the profits of the potail. While the province was under the management of the British, the assessments were made with greater regularity, and varied only when bad seasons rendered an abatement necessary.

In petty cases, both of a criminal and civil nature, the potail acts as judge, assisted sometimes in the latter description of cases by a body of arbitrators, an institution known through the greater part of Hindustan as the *Punchayet*. These arbitrators, as the name implies, are usually five in number, of whom two are selected by each party in the cause, and the fifth is nominated by the local authority. The more serious criminal offences are tried before the rajah in person, or in places distant from the seat of his government by a soubahdar, who is usually a military officer. Civil suits, in which the sums in dispute are considerable, are tried before the same authorities, the reason for which is stated to be, not so much the wish to distribute even-handed justice, as 'the desire of fleecing both parties.' In these cases a sum equal to the fourth part of the amount in dispute goes to the rajah as a fine on the loser, and another fourth part is taken from the gainer as payment for the trouble of deciding the cause.

The chief productions of the province are wheat, rice, Indian corn, peas, vetches, flax for the oil contained in its seeds, sugar, betel-leaf, and tobacco. The wild indigo plant is generally met with, but is not cultivated.

Domestic slavery exists, but not to any great extent. In times of scarcity it is not uncommon for parents to sell their children, who are received into the families of the purchasers, and are usually treated with kindness.

The education of children appears to be but little attended to in the dominions of the rajah of Berar. 'In a report made in 1826 by Mr. Jenkins, the East India Company's resident at Nagpore, to the Bengal government, it is stated that 'education is chiefly confined to the children of Brahmins and those of the mercantile classes, and the education they receive does not seem much calculated to promote their moral or intellectual improvement. All the other classes are extremely illiterate: it is a rare circumstance to find one amongst them who can write his own name. The only order who ever look at books are Brahmins, and their reading is confined to subjects of Hindu divinity.' Whatever schools there are have been established in the larger towns; and taking the whole of them into the calculation, it would seem that not more than one child in eighty in the province receives the benefit of instruction.

It does not appear that any support is given by the government for the encouragement of education, either by the establishment of free schools, or the grant of lands or pensions to any of the teachers, who depend entirely on payments made by the parents of pupils. The average rate of these payments may be taken at three annas (4½*d.*) per month for each scholar; and as the average number of pupils in each school is only twenty, the annual income of the teacher will not exceed on the average forty-five rupees (4*l.* 10*s.*) per annum.

The trade of the province is limited to internal traffic, and this only to a small extent, owing to the want of facilities for transporting goods. It is doubtless owing to the absence of external commerce that so little is known of the features of the country and the condition of the greater part of its inhabitants.

(Ayin i-Akbari: Rennell's *Memoir of a Map of Hindustan*; Mills's *History of British India*; Evidence given by Mr. Jenkins, late political resident at Nagpore, before the Committees of the Houses of Lords and Commons appointed to inquire into the affairs of the East India Company in 1830 and 1832.)

BERA'T, an important town in the northern part of Aloania, in European Turkey. It is on the right or north bank of a river called by the various names of Crevasta, Kavroni, or Beratina (the antient Apsus), which is here about as broad as the Thames at Richmond. The surrounding district is inhabited by the tribe of Albanians, called Toske (Τόσκιδες), and the town itself is, next to Skodré or Scutari, the most important place in Albania. It is in 40° 48′ N. lat., and 19° 52′ E. long.

The valley in which it is situated is magnificent; it is better cultivated than the country to the southward, and the inhabitants are more civilized. There is a fine bridge of eight arches over the river, and a citadel or acropolis, upon a hill. This acropolis was much enlarged by Ali Pasha in the present century; its circuit contains a small town, and many Greek churches of the Lower Empire. The lower part of its walls exhibits some massive building of the antient Greeks. It is likely that this acropolis once formed the whole town, and that the lower town, which is outside its walls, is an addition made by the Turks. It mounted forty cannons before it was taken by Ali Pasha from Ibrahim, Pasha of Avlóna, whose stronghold it was; and it is likely that, in consequence of Ali's additions, the number has been increased.

The lower town, which lies chiefly on the S.E. side of the acropolis, is large, and contains thirteen Turkish mosques. The bazaar, which is handsome and spacious, lies close to the river. It abounds in articles brought from Constantinople and Macedonia, as well as in foreign goods imported through the port of Avlóna.

The inhabitants of Berát are estimated at 9000,[*] and are almost entirely Mohammedans, though the town is the see of a Greek archbishop. The women wear a cap or bonnet in shape like a bishop's mitre, nearly two feet high; it is generally made of blue cloth, is well stuffed, and fastened under the chin by ribbons. Blue is the predominant colour in female apparel at Berát.

In 1809, Berát, then in possession of Ibrahim, Pasha of Avlóna, was besieged by Omer Bey Vrioni, general to Ali Pasha of Joannina, and bombarded from the neighbouring heights. Ali's troops were supplied with Congreve rockets, under the direction of an English officer; and so much were the garrison and townspeople terrified by these new instruments of destruction, that Ibrahim was obliged to capitulate, upon condition of retiring with his suite and treasures to Avlóna.

(Hughes's and Hobhouse's *Travels in Albania*; Balbi, *Abrégé de Géographie.*)

BERAUN, one of the central counties of the kingdom of Bohemia, the most northerly point of which skirts Prague, the capital, contains an area of 1110 square miles, and lies between 49° 32′ and 50° 4′ N. lat., and 13° 38′ and 14° 49′ E. long. There is no part of Bohemia more diversified with hills and mountains; none in which there are finer plains, and few more densely peopled. The northern districts are watered by the Beraun or Beraunka, which flows across them into the Moldau: the north-eastern by the Sazava, another tributary of the Moldau; the western by the Litawka, which runs into the Beraun; and the Moldau itself winds through the county from the south in a somewhat north-easterly direction, receiving the Sazava and Beraun before it reaches Prague. The inhabitants who were 137,517 in 1817, and 169,455 in 1830, amount at present to about 175,000, and speak almost exclusively the Bohemian tongue. They live in ten towns, twenty-two market-towns, and 771 villages; the number of regular houses is 24,164, and that of tenements of all descriptions, including the houses, is 37,485. The produce of the soil is timber, grain, and vegetables in large quantities, with a small quantity of wine and hops; the breeding of horses (in 1830, 6578) and sheep (in 1830, 94,071) is considerable and thriving; and the country has various manufactories, principally of cottons, linens, hose, potashes, and paper. It raises alum in a pure state, and much iron, particularly near Horzovitz, in the western part of Beraun, the principal spot on the domains of the earldom of Webna, which has about 1900 inhabitants; in this neighbourhood are four high-blast furnaces, besides smelting-houses, smithies, and iron-ware manufactures. It also produces silver, red-lead, and quicksilver, as well as coals. Iron is likewise raised at Obecnitz and Althütten, on Count Collerodo's estates in the central part of Beraun, east of the great 'Brdy Forest,' which intersects it in a south-westerly direction from the banks of the Moldau to its most southern border. Near Przibram, a town on the Litawka with nearly 4000 inhabitants, in the south-west of the country, there are considerable silver and lead mines, and pig and sheet lead works.

The celebrated castle of Karlstein, about five miles N.E. of Beraun, built by Charles IV. in 1348, is the most remarkable of the seven or eight hundred burgs in Bohemia, and is a favourite place of resort, on account of the numerous and valuable specimens which it contains of the earliest state of painting in Germany and Bohemia. The raising of marble, and the manufacture of porcelain and earthenware, also give employment to the inhabitants. Beraun, the capital of the province, called Slawoszow in Bohemian, and Verona and Berne in old chronicles, lies in the north-west at the confluence of the Beraun and Litawka; it is surrounded by an antient wall and ditch, contains 286 houses, and about 2200 inhabitants, is the seat of a gymnasium and monastery of Piarists, and manufactures considerable quantities of earthenware for the Prague market. 49° 58′ N. lat., and 14° 5′ E. long.

BERBERI'DEÆ, a natural order of plants belonging to the great class of Endogens, or Dicotyledons. It is readily known by three characters:—1. Its anthers open by reflexed valves; that is to say, the face of each cell of the anther peels off except at the point, where it adheres as if it were hinged there. 2. Its stamens are opposite the petals. 3. Its flowers are usually formed upon a ternary plan, there being three or six sepals, a like number of petals, and of stamens. This last character is more liable to exception than the two others. The remarkable structure of the anther is found in no European plants except Berberideæ and the laurel tribe [see LAURINEÆ]; and as the latter has neither petals nor a ternary arrangement of the parts of the flower, it can never be mistaken for these. The present order consists of bushes or herbs, extremely dissimilar to each other in appearance, inhabiting the cooler parts of the world, being unknown in the tropics, except on the summits of lofty mountains. They are not met with in Africa or the South Sea Islands. Their juice usually stains yellow and their bark, or stems, if not woody, are bitter, and slightly astringent, on which accounts they have been received into the *Materia Medica* of all countries. The most remarkable genus is Berberis.

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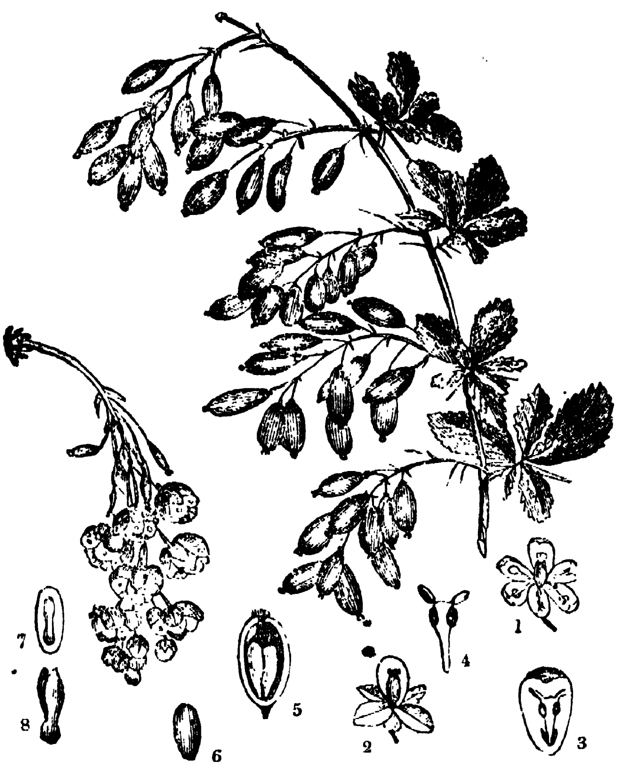
[*] This is the number given by M. Balbi; in Dr. Holland's Travels in Albania the population is given at 15,000.



[Berberis vulgaris.]

1. An expanded flower. 2. The calyx without the petals. 3. A petal, with a stamen in front of it. 4. A stamen by itself, with the valves of its anther reflexed. 5. An ovary cut through, showing the position of the ovules. 6. A ripe seed. 7. A section of the latter, showing that the embryo lies in albumen. 8. An embryo separated from the seed.

BE'RBERIS, a genus of plants belonging to the natural order *Berberideæ*, among which it is immediately known by its shrubby habit, berried fruit, and the presence of glands upon its petals. It is also remarkable for the irritability of its stamens, which, when the filament is touched on the inside with the point of a pin, or any other hard instrument, bend forward towards the pistil, touch the stigma with the anther, remain curved for a short time, and then partially recover their erect position: this is best seen in warm, dry weather. After heavy rain the phenomenon can scarcely be observed, owing, in all probability, to the springs of the filaments having been already set in motion by the dashing of the rain upon them, or to the flowers having been forcibly struck against each other. The cause of this curious action, like all other vital phenomena, is unknown. It is ascribed to what is called local irritability, but this is not throwing much light upon the subject. All that we certainly know concerning it is this, that the irritability of the filament is affected differently by different noxious substances. It has been found by Messrs. Macaire and Marcet, that if you poison a berberry with any corrosive agent, such as arsenic or corrosive sublimate, the filaments become rigid and brittle, and lose their irritability; while, on the other hand, if the poisoning be effected by any narcotic, such as Prussic acid, opium, or belladonna, the irritability is destroyed by the filaments becoming so relaxed and flaccid, that they can be easily bent in any direction. It is difficult to draw from this curious fact any other inference, than that in plants as well as in animals there is something analogous to a nervous principle, which is more highly developed in some plants, or in some organs, than in others.

The species of which this genus consists are interesting both for their utility and their beauty, on which account we shall describe the more remarkable kinds in some detail, especially as we find much to add and to correct in all the summaries of the genus that have yet been published. The value of the bark and root of the common barberry for dyeing leather and linen of a yellow colour, is well known. Mr. Royle has shown that this property is extended to the species of India, especially to his *Berberis aristata*; and it has been ascertained by Vauquelin, that a plant found on the Nilgherries (the *B. tinctoria*) is inferior to few woods for dyeing yellow. The acid quality of the fruit has rendered all the species more or less esteemed: that of *B. aristata* and *B. Nepalensis* is dried by the mountaineers of India as raisins, and sent to the plains for sale. The bitterness and astringency of the bark has caused them to be received into the list of useful medicinal plants; and it will be interesting to our classical readers to know that it has lately been ascertained by Mr. Royle, that the λύκιον Ἰνδικόν (Lycium Indicum) of Dioscorides, concerning which so much doubt has always existed, was an Indian species of barberry, now called *Berberis Lycium*. (For the conclusive evidence upon which this rests, see Royle's *Illustrations of the Botany of the Himalayan Mountains*, &c. p. 63.) The supposed injurious effects of the barberry upon corn have already been shown to be a popular error, under the article Æcidium.

To persons having gardens this genus has particular attraction on account of the great beauty of many of the species, which are, however, but ill understood, even by botanists themselves. We venture to offer the following as a correct account of those which are cultivated. They are obviously divided into two great groups, of which the first has undivided leaves, like the common barberry; and the others are pinnated, after the manner of the leaf of an ash-tree. Botanists call these *Mahonias*. *Ash-barberry* may be taken as their English designation.

§ 1. *Leaves simple*.—True Barberries.

* *Leaves thin, deciduous; flowers solitary.*

1. *Berberis Sibirica* (Siberian barberry).—Leaves obovate, obtuse, deeply and irregularly toothed: flowers solitary, shorter than the leaves; spines deeply divided into from three to seven shining partitions. A small shrub found on exposed rocks on the hills and lower mountains of Altaic Siberia, where it is very common. It is to be procured in the choicer collections of this country, to which it was originally introduced by Pallas, who has figured it in his *Flora Russica*, tab. 67. The berries are, according to Pallas, obovate, and of a red colour. This does not thrive in England, but is always a scrubby bush of inelegant appearance.

* * *Leaves thin, mostly deciduous; flowers in racemes.*

2. *Berberis Cretica* (Candian barberry).—Spines in three or more divisions: leaves small, obovate, acute, nearly free from toothings; flowers in very short, compact racemes. Not uncommon on the mountains of Candia and Greece, whence it has been brought to our gardens. It is a dwarf, scrubby bush, looking like a starved specimen of the common barberry. Its berries are said to be black, ovate, two-seeded, and austere rather than acid.

3. *Berberis vulgaris* (the common barberry).—Spines in three deep divisions: leaves obovate, with fine spiny toothings; flowers in drooping racemes, which are longer than the leaves. This common species appears to inhabit equally the north of Europe, Asia, and America in woods and thickets, especially in limestone countries. De Candolle remarks that it extends in Europe from Candia to Christiania, and that while in northern latitudes it is a valley plant, it becomes in the south exclusively a mountaineer, climbing so high on Mount Ætna as to be the most alpine of the shrubs of the sterile belt of that mountain at the height of 7500 feet. Like all such plants, it has in the course of ages formed numerous varieties: these are, however, chiefly confined to the fruit, there being a great similarity in the foliage of all except one. Those known in the gardens are the following:—1. The *common red-fruited;* 2. The *stoneless*, which differs from the first in nothing except the want of seeds; 3. The *white*, or *yellow fruited;* 4. The *violet, purple*, or *black-fruited*, and 5. The *sweet-fruited*. The latter, although called sweet, is scarcely less acid than the common barberry, with which its fruit agrees in colour: but its leaves are a much brighter green, and shining instead of dull: it is found wild in Austria. Besides these there is in the catalogues a Canadian barberry, which appears to be nothing more than a common barberry brought from North America; and *Berberis Daurica* and *Altaica*, neither of which merit to be distinguished from *B. vulgaris*.

This species is usually a bush from four to six feet high; but in Italy it becomes as large as a plum tree, living a couple of centuries or more. The wood is hard, but brittle, and is chiefly employed by the dyers for staining yellow. The acid qualities of this fruit render it unfit to eat raw, but it makes one of the most delicious of preserves.

4. *Berberis Canadensis* (Canadian barberry).—Spines di-

vided into three equal lobes; branches covered with little elevated points; leaves oblong, distantly and coarsely toothed; flowers in corymbose racemes, nodding. Found in the northern states of North America. This plant is not now in our gardens. It is generally considered the same as *Berberis vulgaris*, because the specimens called *B. Canadensis*, both in gardens and herbaria, certainly are so; but this, the true plant of Miller and others, appears to be abundantly different from the common species in the characters here assigned to it: its leaves are, moreover, of a thicker texture. We have a wild specimen gathered by Frazer, which entirely agrees with what is said of the species by Pursh.

5. *Berberis cratægina* (hawthorn barberry).—Spines simple; leaves oblong, strongly netted, with a straggling serrature here and there; flowers in dense, drooping, many-flowered racemes which are scarcely longer than the leaves. Described by De Candolle from specimens collected in Asia Minor. Young plants of what is said to be this species are in the gardens, but they have not yet flowered.

6. *Berberis Iberica* (Iberian barberry).—Spines often simple, but sometimes three-cleft; leaves nearly undivided; flowers in loose, nearly erect racemes, much longer than the leaves. A native of Iberia, and very like *B. vulgaris*, from which its smaller toothless leaves, and thin, almost upright racemes of smaller flowers at once distinguish it. The berries are dark purple. There is a bad figure of it in Watson's *Dendrologia Britannica*, plate 26, under the erroneous name of *Berberis Sinensis*.

7. *Berberis Sinensis* (Chinese barberry).—Spines three-parted, or none; leaves lanceolate, very acute, much netted, entire, or regularly toothed; flowers numerous, in drooping racemes, which are not much longer than the leaves. A native of the north of India and of China, where it was found during Lord Macartney's embassy, between Pekin and Jehol. More common in French than English gardens. Its leaves are sometimes almost toothless, sometimes rather finely, and occasionally very coarsely toothed. They are much smaller, thicker, and more netted than those of *B. Iberica*, which this species most resembles. The berries are said by De Candolle to be dark-purple: we find them a dirty red, on plants which we are certain he considered to belong to this species.

* * * *Leaves leathery, evergreen; flowers solitary, or in clusters.*

8. *Berberis Wallichiana* (Wallich's barberry).—Spines long, slender, three-parted; leaves oblong, lanceolate, deep-green, sharp-pointed, finely serrated; flowers very numerous, in clusters shorter than the leaves. A native of Nepaul, and apparently of the higher part of the country. It has never yet been introduced to our gardens; but it is exceedingly well worth procuring on account of its deep-green evergreen leaves. *B. atroviridis* is another name for it.

9. *Berberis dulcis* (sweet-fruited barberry).—Spines long, slender, simple, or three-parted; leaves obovate, obtuse, with or without a bristly point, quite entire, glaucous on the under-side; flowers solitary, on slender stalks, twice as long as the leaves. A native of the south-western part of South America, from the Straits of Magalhaens to Valdivia, where it forms a small evergreen bush. Its fruit is round, black, about as large as a pea: it is said to be sweet, and well suited for making tarts or preserving. This species has been some years in this country, but is at present very rare.

10. *Berberis heterophylla* (various-leaved barberry).—Spines strong, three-parted; leaves obovate, lanceolate, acute, either entire or with from three to five spiny teeth, very deep green; flowers solitary, on stalks about twice as long as the leaves. An inelegant bush about three feet high, bare of leaves, and having nothing but its rarity to recommend it; it is a native of the Straits of Magalhaens; in the gardens it is usually called *B. ilicifolia*; there is a figure of it in Hooker's *Exotic Flora*, vol. i. t 14.

11. *Berberis empetrifolia* (crowberry-leaved barberry).—Spines slender, long, in three or five deep divisions; leaves linear, with a spiny point, rolled back at the edge, collected in bundles in the axils of the spines; flowers solitary, growing on stalks about as long as the leaves. A very curious and pretty plant, as yet rare in this country; found wild, from the Cordilleras of Chili to the southern point of the American continent, over the whole of which country it appears to be very common. In general aspect it is much more like a heath than a barberry.

Besides these species there are several of great beauty as evergreen shrubs to be procured from South America: of these *Berberis actinacantha*, an extremely common plant between Valparaiso and St. Iago, might be easily introduced.

* * * * *Leaves leathery, evergreen; flowers in racemes.*

12. *Berberis floribunda* (many-flowered barberry).—Spines very stiff and three-parted; leaves oblong or oblong-lanceolate, nearly entire or toothed in various degrees, sometimes very deeply and coarsely veined; flowers in long loose slender racemes. Apparently extremely common in the whole of the north of India, where it forms a tall bush, varying considerably in the form and size of the leaves, and in the degree in which they are toothed, but always well marked by its slender, pendulous, or erect racemes of flowers, which are much longer than the leaves, and in no degree corymbose. It is to be found occasionally in the more choice collections of this country. Out of accidental variations in its mode of leafing and flowering, the spurious species called *B. affinis* and *ceratophylla* have been constituted. By Dr. Wallich, in his great distribution of the *Herbarium* of the East India Company, it has been mistaken for *B. aristata*, which is altogether another plant.

13. *Berberis Asiatica* (raisin barberry).—Spines small and weak, simple or three-parted; leaves oblong or obovate, acute, somewhat glaucous beneath, either entire or coarsely or even finely toothed; flowers in short compact racemes not longer than the leaves. Found in Nepaul and Kamaoon very abundantly, forming a tall bush with the habit of the common European barberry. The fruit is round, covered over with a thick bloom, and has altogether the appearance of the finest raisins. It is produced abundantly in this climate, where the plant is now not very uncommon. The very short racemes are the principal distinction of this species when in flower.

14. *Berberis dealbata* (whitened barberry).—Spines scarcely any; leaves roundish, coarsely toothed, rather glaucous, white beneath; racemes very short and compact, pendulous. Recently introduced by the Horticultural Society from Mexico. It is a tall, slender, evergreen bush, with deep-brown branches and scarcely any spines. The leaves are sometimes wedge-shaped and three-toothed, but more frequently nearly round, with two or three spiny teeth on each side. It is sometimes called in the gardens by mistake *B. glauca*, which is a different species.

15. *Berberis aristata* (bristle-leaved barberry).—Spines three-parted, simple, or wanting: leaves obovate, acute, shining on both sides, with a few bristle-pointed teeth on either edge; racemes always more or less compound and corymbose. A native of the mountains of India, extending from the Himalayan range down the Nilgherry as far as Nuera Ellia and Adam's Peak in Ceylon; it is a hardy sub-evergreen bush in the gardens. Its stature is that of the common barberry, but it is a far handsomer species, not only because of its evergreen leaves, but on account of the fine large corymbose racemes of flowers with which it is covered in June. Its fruit is oblong, brownish-purple, with little or no bloom, and about three seeds: the flavour is insipid, with a little acidity. The form of the leaves and their degree of toothing are too fallacious to be cited as marks by which this may be distinguished from other species. It is, however, immediately known by its compound racemes of flowers, which have a corymbose appearance, as is well represented in the *Botanical Register*, t. 729. where the plant is called *B. chitria*; the chitri of the Nepaulese is however not this plant, but *Berberis petiolaris*, a species not yet in England.

Besides the foregoing there are still some beautiful species to introduce from the south of Chili, particularly one found by Mr. Bridges near Valdivia, with shining holly-like leaves, long racemes of orange-coloured flowers, and young branches covered with rusty down. We particularly invite the attention of travellers in Chili to this plant, the seeds of which would certainly reach England in safety if mixed with tenacious earth and rammed into a box.

§ 2. *Leaves pinnated; all evergreen.*—ASH-BARBERRIES.

16. *Berberis fascicularis* (Californian ash-barberry).—Leaflets ovate, finely toothed, not shining; flowers in short compact clusters; stem tall and woody. Found in the mountainous parts of California and Mexico. A very handsome evergreen shrub, with pinnated leaves which are by

no means shining, and of a paler green than several of the others. It is rather too delicate to bear the winters of the neighbourhood of London without some protection; but it would, in all probability, be perfectly hardy in the south-western parts of Great Britain. It is readily known by the generally rounded appearance of its clusters of flowers, which appear in June. Figured in the *Botanical Register*, vol. ix. plate 702, under the name of *B. pinnata*.

Mahonia diversifolia of the gardens seems to be the same as this; and the story of its having been brought from Monte Video is probably not true.

17. *Berberis aquifolium* (holly-leaved ash barberry).—Leaflets ovate-lanceolate, flat, deeply and regularly toothed, remarkably shining; flowers in long narrow racemes; stem tall and woody. A native of North-west America from New Albion to Nootka Sound, growing in woods, where it forms a thick and rich underwood. It has been introduced to this country of late years, and is perhaps the handsomest hardy evergreen we yet possess. Its foliage is of a rich deep shining green, becoming purple in the winter; it bears fruit in some abundance, which consists of clusters of roundish black berries, having their surface covered with a rich violet bloom. They have no merit as fruit, but would probably be greedily sought by game, for the protection of which in coverts this species seems well adapted, if it could only be obtained in sufficient quantity. The difficulty of propagating it has hitherto made it a scarce plant; but seeds might be easily obtained from the Hudson's Bay Company's settlements in North-west America. It most resembles *B. fasicularis*, from which its large shining leaves at once distinguish it; and it is perfectly hardy, which that species is not. Flowers in May and June; it has been figured in the *Botanical Register*, vol. xvii. plate 1425.

18. *Berberis repens* (creeping ash-barberry).—Leaflets few, somewhat glaucous, especially on the under side, oblong, when old rounded at the point, with shallow toothings; flowers in crowded, compound, erect racemes; stem very dwarf; runs at the root. Found wild on the east side of the rocky mountains of North America, and perfectly hardy in our gardens. Its stems do not grow above six or nine inches high, and are loaded with a profusion of rich yellow flowers, which constitute the principal beauty of the species. Its fruit is unknown. A good figure of it has been published in the *Botanical Register*, vol. xiv. plate 1176. Nothing can be more unlike *B. aquifolium* than this is, although the two have occasionally been most unaccountably confounded.

19. *Berberis glumacea* (long-leaved ash-barberry).—Leaflets numerous, ovate lanceolate, coarsely toothed, of a dull glaucous green; flowers in long, narrow, erect racemes; stem very dwarf; scales of the leaf and flower-buds stiff and glumaceous. A native of North-west America, growing in shady grassy places in woods. The stem of this species does not grow more than six or eight inches high, and is, in fact, shorter than its leaves, which consist of about six pairs with an odd one, and are jointed at every pair of leaflets in the manner of a bamboo stem. The fruit is roundish and insipid, of a fine glaucous purple. This is less rare than *B. aquifolium*, and is an object of curiosity more than of utility. It loves to grow in a shaded American border, where it is protected from the fiercer rays of the sun. It is figured in the *Botanical Register*, vol. xvii. plate 1426. *Berberis*, or *Mahonia nervosa*, is another name for this.

In addition to these four beautiful species there are the following, which still remain to be introduced to this country:—*Berberis Leschenaultii* (the *B. acanthifolia* of some), a fine pinnated plant with round black fruit, found on the Nilgherry mountains of India at the elevation of 8000 feet. *Berberis Napalensis*, a native of the mountains of the north of India, where, according to Mr. Royle, it grows twelve feet high in shady places, at 5000 and 6000 feet of elevation: this is a noble species, and ought to be obtained from India at any cost, as it would, in all probability, succeed in this climate. *Berberis tragacanthoides*, with not more than one or two pairs of leaflets, found along the banks of the river Kur, near Tiflis; and *Berberis caraganæfolia*, a Chinese plant very like the last: both the latter have the points of the leaves hardened into spines.

BERBERS, BREBBE'R (Berbers is nothing else than Barâbra; Barâbera being the Arabic form of the plural from Berber), the name given by the Arabs to the original inhabitants of North Africa, which corresponds to the Libyans of Herodotus, who were the aborigines of the north, and by him distinguished from the Ethiopians to the south, and from the Greeks and Phœnicians who had settled on the northern coast. The people, however, to whom the name of Berbers is now generally applied, namely the inhabitants of the whole Atlas range from the Atlantic coast of Marocco to the shores of the gulf of Cabes or little Syrtis, call themselves in their own language Amazirgh, or Tamzirght, and are not acquainted with the name of Berber, which appears to have been first used by the Arab writers in the second century of the Hegira (eighth century of our æra), after the Mohammedan conquest of North Africa and of Spain. Previous to this the Arabs used to call the inhabitants of Mauritania A'djem, or mosta'djem, 'strangers,' 'who did not speak Arabick.' (Graberg di Hemsö, *Specchio geografico e statistico dell' Impero di Marocco*, Genoa, 1834.) In the council of Toledo, 694 A.D., a great number of Jews were ordered to leave Spain under the charge of holding treasonable correspondence with their brethren of Africa known by the name of Pilistins, who were settled in great numbers among the Amazirghs and the Moors. Graberg thinks that the more civilized Jews of Spain may have used the word barbaros in speaking of their neighbours across the Straits, out of which word the Arab writers of Spain in the following century may have formed the word berber or Juhud el berber, 'barbarian Jew.' The Arabian historians and geographers, however, have given various and more fanciful explanations of the word berber. Some derive it from Bar, desert, others from the word 'berberna,' which signifies a murmuring, indistinct noise, for such the language of the North African natives sounded to the ears of the Arabs. (Leo Africanus, *Africæ descriptio*, and Shehabeddin, in his *Ketab Adjuman*, written about 1450: the latter is quoted by Ritter, *Afrika*, s. 24.) One of the antient and principal tribes of the Amazirghs was called Berani, or sons of Ber, a descendant of Madzigh, the progenitor of the whole race. (Ibn Khaldun, *History of the Berbers*, written about 1370.) Others say that Ber was the son of Kis and grandson of A'ilam, one of the shepherd kings of Egypt. In the antient Roman geography of Mauritania we find a tribe called Verves in the north eastern part of Tingitana, near the western bank of the Molochat river, and farther south beyond the Sebu river were the Verbicæ and the Nectiberes. According to Graberg the origin of the word Berber might be traced to those, as the *b* and the *v* are interchangeable letters. Whether, therefore, the word Berber is of indigenous, or Arabic, or Greek and Roman origin is still a matter of doubt. It has been, however, generally employed by the Arabian writers, when speaking of the North African aborigines. Among the earliest of these writers who speak of the Berbers, we find Hesham ben Mohammed al Khelebi, who lived in the beginning of the 9th century, Kaid Aïad Ben Musa, who died about 956, and Abul Kasem Mohammed Ibn Hhaukal, who wrote about 970.

With regard to the origin of the Berbers, we find it likewise involved in obscurity. Tradition among themselves, as well as the accounts of the Arabian writers who have written concerning them, seem to point to the land of Canaan as the country they came from. Ahmed el Fasi, in his *Ketab el Giammar*, says that the Berbers are a colony of Philistines who took refuge in Africa after David had killed Gialout or Goliath (Herbelot, art. *Gialout*). Others say that they are the descendants of the Canaanites and Amalekites driven from Palestine by Joshua. There is now a tribe of Berbers near Mequinez called Ait Amor, said to be the descendants of the Amorites. Procopius (Vandalicorum, II.) says that the Gergashites, Jebusites, and other nations being driven out of Palestine by Joshua, built cities in Libya, and occupied the country as far as the Straits of Gibraltar; and he also asserts that in his time there were at Tangier two marble columns with inscriptions in the Phœnician language, to the following import:—'We fly from the robber Joshua, the son of Nun.' But Procopius also says that there were other nations settled in Libya before the arrival of these strangers. Though the statement of Procopius may be worth little, it serves at least to show that the tradition of the old relationship between the Canaanites and the natives of North Africa existed in his time. Graberg, without controverting the tradition of the Canaanite and Philistine emigrations, thinks that the Amazirgh race existed in North Africa previous to the age of Joshua, and the traditions of the Shellooh are in favour of that supposition. The Shellooh, it must be observed, are a clans-people, and great genealogists. They call themselves the descendants of Mazigh, son of Canaan, and consider their northern neighbours, the Brebber of Fez, as Philistines, descendants of Casluhim, son of Mizraim. Ibn Khaldun says of the Berbers in general that they are descended from Ham, like the antient Egyptians. Graberg, Höst, Marsden, and others who have paid attention to the Tamzirgt language, think that it has no affinity to the languages commonly called Shemitic. At the end of Chamberlayne's *Oratio Dominica*, London, 1715, there is a Latin epistle from Jezreel Jones about the *lingua Shilhensis*, which, he says, was once the language of both Mauritanias, but is now confined to the inhabitants of Messa, (Sejelmesa?) Dara, Sus, and the Recphean Mounts. The difference between its various dialects consists, he says, chiefly in the pronunciation: in many places they have several words to express the same thing; their sounds are hissing and guttural; many Hebrew, Latin, Greek, and Punic words are mixed with their language, and they generally use the prefix Aït to the names of their tribes. He compares their habits to those of the Irish; and he gives a vocabulary of about one hundred words of the Shillooh language with the Latin meaning. The numerals are as follows:—1, yean; 2, seen; 3, erat; 4, koost; 5, summost; 6, sutheast; 7, sad; 8, tempt; 9, tzaw; 10, murrow; 11, yean d'murrow; 12, sin d'murrow, &c.; 20, ashedeen; the other multiples of ten, he says, are Arabic: 100 is tameadon; 1000 is woaphodon. Shaw, in his vocabulary of the Showiah or Algiers Berber, gives ewan for 1, seen for 2, and the other numerals, he says, are Arabic.

Numerous other emigrants from the East are reported to have settled on the coasts of Northern Africa at very remote times, Hercules and his companions, Armenians, Medes and Persians, &c. Of the Persians we are told that on landing they turned their boats topsy-turvy, and used them as huts (Sallust, *de Bello Jugurth.*, c. 18): but these traditions cannot be considered as of any historical value. The Phœnicians and Greeks came next, and afterwards the Romans, Vandals, Jews, Arabs, &c. This will account for the great admixture of races in various parts of the country, especially near the coasts; but still one race, the Amazirgh, appears distinct from the oldest times on record as having maintained its identity, its habits, and a separate language till the present day. The name Mazigh or Amazirgh may be traced in the Greek and Roman writers, in the Maxyes of Herodotus; in the Masices of Ptolemy, who lived in Western Tingitana, between the river Zilis and the cape Hermæum, now cape Cantin; in the Tamusiga of the Periplus, now Tafelne, south of Mogodor; and probably in the Massyli and Massæsyli of the Roman geographers. The little island before Algiers is called by Ammianus Marcellinus, Insula Mazucana, and by the oldest Arabian writers Jeezira Beni Mazighanan. Eustathius, in his notes to *Dionysius Periegetes* (l. 195), calls Iarbas, the Numidian, king of the Mazices and the Nomades. The town of Mazagan, near the mouth of the Ummi-er-R'bie'h, still bears the same name.

With regard to the Arab immigrations previous to Mohammed's æra, Ibn al Raquiq, who wrote in the 11th century, in his tree of African generations, quoted by Leo Africanus and by Marmol, says that the Sabæans came from Arabia across the Desert, under Melek Ifriki, who gave his name to Africa. They consisted of five tribes, the Senhagia, Massmudah, Zeneta, Hawara, and Gumera. These were probably the Quinquegentani of the Romans. 'They,' he says, 'were called African Berbers, while the inhabitants of Tingitana who had settled there in very remote times were called Berber Xiloes, or Shellooh. The latter lived in houses in the mountains, and some of the new comers from Arabia joined them, while the rest continued to live in adowar or tents. Their tribes were called Kabyles.' Now the very mixed race who, under the name of Moors, inhabit not only the coasts and the chief towns of Barbary, but are spread into the interior as far as Sudan, and are every where distinct from the Berber or Mazigh tribes, trace their origin to these Sabæans or Himiarites. [See Moors.]

It is now generally believed that the Berbers of Fez, the Shellooh of Marocco and Sus, the Showiah or Kabyles of Algiers, and the Beni Mozab and other tribes of the Belad el Jereed south of the Atlas, the Zuaves of the regency of Tunis, the A'dems of Ghadamis south of Tripoli, and the Tuaricks of the Great Desert, as well as the inhabitants of the Oases of Siwah, Audjelah, and probably of Fezzan also, are branches of one great parent stock, the Mazigh or aboriginal white race of Northern Africa. Their various dialects are probably derived from one common language, as far as can be judged from the scanty information we have concerning them. Such is the opinion of Marsden, Hornemann, Seetzen, Graberg, Venture, Ritter; and such was also the opinion of Ibn Batuta and Ibn Khaldun, who was himself of Berber race, and who wrote a history of the Berbers; of Abu Mohammed Salêhh el Gharnati, Shehabeddin, Leo Africanus, and other Arabian travellers, geographers, and historians. (See Hornemann's *Vocabulary of the Siwah and Audjelah Dialects*; Venture's *Vocabulaire Berber*, in Langlès's French translation of Hornemann; Minutoli's *Vocabulary of the Siwah Language*; Shaw's *Vocabulary of the Showiah or Algerine Berbers*; Höst's *Efterretninger om Morokos*, in which is a vocabulary of the western Amazirgh; and Vater's *Mithridates.*) Seetzen and Venture think that the Barabra or Berbers of Nubia are also derived from the same stock, and Seetzen was assured by one of the Barabra pilgrims, that the Berbers of the Nile understand the dialect of the Berbers of Moghrib, or Marocco, who come with the caravans through Nubia on their way to Mecca. (Seetzen's letter to Von Hammer in the *Fundgruben des Orients*, vol. iii.) On the coast of Adel, south-east of Abyssinia, is the harbour long known by the name of Berbera. The Somaulis, the inhabitants of the country, are supposed by some to be of Berber race; and the whole of this coast, from Cape Guardafui to the straits of Bab el Mandeb, is called Barbaria in the *Periplus* of the Erythrean sea. Again in Sudan, Ibn Batuta, who travelled in the fourteenth century, found a tribe of Berbers in the kingdom of Wadai or Bergu, which lies west of Darfur, and the king of the country was then of Berber race. (See Ritter's *Africa*, sec. 24, where he speaks of the Berbers of Nubia, and sec. 31, where he speaks of those of Mount Atlas.) This supposed relationship, however, between the Barabra of Nubia and the Berbers of the Atlas is a matter of at least great doubt, and not to be relied upon. [See Barabra.]

The word Amazirgh signifies noble and free. The letter *t* prefixed to a noun constitutes the article, and the same letter affixed to the end marks the feminine gender. Tamazirgt or Tomzirgt is the name they give to their language and their nation. Amrgar means master, lord; tamrgart, mistress, lady; agschish, male infant; tagschist, female child; aram, or elgum, a male camel; taramt, or telgumt, a female camel; agmar, a horse; tagmart, a mare; dabrican, black, adj. masc.; tabricant, black fem.; damellel, tamellett, white; ilha, tilhat, handsome, &c. Most of their names of towns, countries, and rivers begin and end likewise with the letter *t*; Tafilelt, Tesset, Tarudant, Talent, &c. (Graberg, *Specchio del Marocco.*) Ritter observes in support of the hypothesis that the Amazirgh was once the language of all northern Africa as far as the Red Sea, that certain prefixes or affixes belonging to it are found in many local names across the whole breadth of the continent, for instance Daran, which means mountain, is found in the Abyssinian Taranta, in the neighbourhood of the Hazorta tribes, who, like the old Bejas, Bishareens, and other African tribes along the Red Sea, he supposes to have been originally Berbers, and again in Dar-fur, Dar-Fungara, Dar-Kulla, &c. The name Tacrur, tecurol, is also found repeated in a number of villages. Jackson and Ritter also give short tables of words, common both to the Shellooh dialect and that of the Guanchos, the old inhabitants of the Canary Islands, who were a colony of the Amazirgh race. (Glasse's *History of the Canary Islands*; Bory de St. Vincent, *Histoire des Isles Fortunées.*)

In the empire of Marocco the aboriginal race is divided into two great sections, called by the Arabs Brebbér in the north, and Shellooh in the south. The Brebbér inhabit the northern part of the Great Atlas chain, extending from Mount Erriff, near the coast of the Mediterranean, between Tetuan and Gomera, down as far as the province of Tedla, south of the city of Fas or Fez, and near the sources of the great river Umm-er-R'bie'h. They occupy likewise the eastern side of the same chain, extending into Tafilelt and Sejelmesa, towards the state of Algiers, where their brethren, the Kabyles, succeed them along the line of the Atlas to the eastward. The Berbers were once the masters of all Tafileft, but were driven away by the Arab race. The northernmost Berbers, east of Tetuan, also called Erriffeen from Mount Erreef, have a bad character along the coast. The Berbers in the mountains live under tents, or in huts covered with mats, or in caves, but in the plains they have houses and villages, built generally of wood and clay, covered with straw, and surrounded by a wall full of loopholes to fire through. They live chiefly on the produce of their cattle; they have great flocks of sheep, and also mules and donkeys, but few horses, and, unlike the Arabs, they travel and fight chiefly on foot. Some cultivate the ground, and they all rear bees. A great number of Jews live, and have lived from time immemorial, among them, on a footing of social equality, a peculiarity which is not found among the Shellooh, or indeed among any other tribe in Africa, where the Jews are everywhere more or less despised, and avoided or oppressed. These Jews are called Pilistins by the other Jews of the towns, who look upon them as heretics. The name of Pilistins is sometimes applied to the Berbers themselves by the Shellooh, who consider them as Philistines, descendants of Casluhim, son of Mitzraim, and as having immigrated into the country in the time of Goliath, long after themselves. The sympathy between the Berbers of North Marocco and these Philistine Jews is attributed to a tradition among the Berbers, that their ancestors at one time before the Arabian invasion professed the Jewish religion. This tradition is confirmed by Arabian writers, especially by Abulfeda, and by Abu Mohammed Salêhh, author of the *Ketab al Cartas*, who wrote about the year 1326, and who says, that of the Berbers of Moghrib el Acsa some followed the Christian religion, others the Jewish, and others that of the Magi or of Zoroaster. He says also that the descendants of Sanhagia and Kothama, who emigrated from Asia after David had killed Goliath, and settled in the Moghrib, were professing Judaism at the time of the Arab conquest, and that they accompanied Tarek in his invasion of Andalusia. (Graberg's *Marocco*.) At present the Berbers in general profess, nominally at least, the religion of Islam, and are more fanatical against the Christians than the Moors themselves. They have light complexions, and many have hair as fair as the northern Europeans; their beards are scanty and thin, differing in this from the other races who inhabit Marocco; they are remarkably well proportioned, robust, active, lively, restless, and bold, and implacable in their revenge. They have a sinister, malignant glance of the eye, like the Kabyles of Algiers, and the instinct of cruelty seems to be strong in both. Rozet and other modern travellers observe that the Kabyles, women as well as men, seem to delight in tormenting their prisoners. The Berbers of Marocco are often at war with their Arab neighbours, and also among themselves, tribe against tribe, and family against family. Their hatred and revenge are hereditary, and blood can only be redeemed by blood. The government of Marocco encourages these animosities between tribe and tribe, for the purpose of weakening their strength, which if united might become extremely formidable, as the Berbers and Shellooh together form at least one-half of the population of the whole empire. Graberg reckons the Berbers at above two millions, and the Shellooh at one million and a half. Most of the Berber tribes live in a state of almost total independence, under the administration of their omzargh, amrgar, and amucran, elders and lords who are hereditary. One of these, named Amrgar M'haushe, excited a general insurrection in 1819, and maintained for several years an obstinate war against the emperor. The Berbers dress in a woollen sleeveless jacket and trousers, with occasionally a blanket or a baracan over it. They shave the fore part of the head, leaving the hair behind hanging down to their shoulders; they wear short mustachios, and a small tuft of beard on the chin; they go mostly bareheaded and barefooted; they are good runners, swimmers, and huntsmen, and are very fond of their muskets, which are often ornamented with ivory and silver at a considerable expense.

The Shellooh are smaller made and less robust than the northern Berbers, and they have darker complexions: they are more industrious, peaceful, civilized, and humane; they work at trades and manufactures; they are more husbandmen than shepherds; they live in houses called tigmin, made of stones and mortar, covered with roofs of bricks or slates; they have villages called teddert, and towns called murt, surrounded by walls and towers. They have no Jews among them, and although some of their tribes live close to those of the Berbers, they keep separate from, and never intermarry with them. It appears that they and the Berbers do not understand each other's dialect without an interpreter. The Shellooh consider themselves as the descendants of the original inhabitants of the country, call themselves Amazirgh-Beranis, from the celebrated tribe Beranis, or sons of Ber, descended of Madzig, or Mazirgh, son of Canaan. (See Graberg, Appendix, note 6, *On the Genealogy of the People of Tingitana.*) Every thing seems to confirm the opinion that, notwithstanding the apparent difference between the Shelloohs and Berbers, they were either originally of one race, or have at former epochs so mixed together as to create a great affinity between them, which affinity, in course of ages, has become again in great measure obliterated. With regard to the Shellooh and Berber languages, Graberg firmly believes that they are dialects of one original language, differing less than the Danish, Swedish, and German languages do from each other. The language of the Shellooh is known by the name of Shillah. A Spanish missionary at Tangier, Father Don Pedro Martin del Rosario, who has often travelled through the interior of Marocco, is well acquainted with the Berbers and their language, and has also been among the Shelloohs of the south, said, that between the two languages there is as much resemblance as between the English and the Dutch, and with regard to the character of the two people he used to compare the Shelloohs to the French, and the Berbers to the Belgians. Our knowledge of the various Amazirgh dialects seems too imperfect yet to enable us to decide upon their relationship. Grey Jackson, vol. i., in the short comparative list which he gives of Shellooh and Berber words, puts down for camel algrom in Shellooh, and aram in Berber, and then in another similar list of the Shellooh and Siwah dialects he marks arum in Shellooh for camel. Again, he says that sheep is aouli in Berber and izimer in Shellooh, and afterwards he says that sheep is jellibb both in Siwah and Shellooh. A horse in Shellooh is marked ayeese in one place and akmar in another, and so on in several other instances. Chenier, *Histoire de Maroc*, gives a short comparative list of Shillah and Berber; the numerals and other words appear nearly the same in both. By comparing Shaw's vocabulary of the Showiah or Berber of Algiers, Hornemann's and Minutoli's of the Siwah language, Jezreel Jones' vocabulary of the Shillah language, Jackson's and Chenier's of the Shillah and Berber of Marocco, and Venture's *Dictionnaire Berber*, one may find occasional affinities among them all, especially between the Shillah, the Showiah of Algiers, and that of Siwah. In vol. ii., new series, of the *Transactions of the American Philosophical Society*, is an interesting letter from Mr. Shaler, American Consul at Algiers, to P. du Ponceau, dated 1823, containing some information which he gathered concerning the Kabyle or Berber tribes of the interior, and especially about the Beni Mozab, together with a vocabulary of the Showiah or Algerine Berber in a double version, one furnished by a Jewish interpreter and the other by a Swedish gentleman, not named, long resident in Barbary. There seems to be great affinity between many words and the corresponding ones in the Shillah language, whilst others seem like the few given by Jackson of the North Berber of Marocco. Jackson asserts that neither Berber nor Shillah have written characters, and that those who write in them use the Arabic characters. He never heard that any other characters had ever been in use among them; although Marmol asserts the contrary. The London British and Foreign Bible Society published, in 1833, twelve chapters of the Gospel of St. Luke in the Showiah or Algerine Berber language. The MSS. was purchased of Mr. Hodgson, late American Vice Consul at Algiers, and the version was made under his superintendence by a Kabyle Berber of the mountains near Algiers. Mr. Hattersley is mentioned, in the notice accompanying this version, as having superintended the publication. The accuracy and success of this version have not yet been ascertained (1835). The characters used are Arabic, though with occasional peculiar forms of letters differing from the Arabic. The last chapter is given also in pure Arabic characters.

The Shellooh live in the western valleys of the Atlas, south of Mequinez, in the province of Temsna; but they are more numerous south of the city of Marocco, especially in the provinces of Hhahha, Sus, and Guzzula. They occupy also the western offset of the Atlas which runs to the coast of the Atlantic near Santa Cruz, and which divides the large province of Sus from the rest of the empire. They compose the majority of the population in Sus, and especially in southern Sus, where Sidi Hishiam, of the imperial race of the Shereefs, formed, in 1810, an independent state, inhabited by 250,000 people, chiefly Shellooh. The capital is Talent. The Shellooh are also very numerous in the province of Draha, eastward of the Atlas and towards Tafilelt. The town of Beneali, situated in the Atlas near the sources of the river Draha, is the residence of the chief of all the independent Shellooh of the provinces of Guzzula and Draha. In Jackson's map of Marocco, the various tribes of Shellooh, Berbers, and Arabs, are marked with the initials of each nation, but how accurately we cannot tell. Most of the Shellooh tribes have the prefix Ait before their name, while the Berbers have mostly adopted the Arabic prefix Beni, like most of the Kabyles of the state of Algiers. Of the character of the Shellooh, of their patriarchal habits and hospitality, we have favourable accounts from various travellers, but not so of the Berbers and Kabyles, who appear to be thievish, murderous, and cruel. The Shellooh, however, are also often at variance among themselves, through hereditary and bloody feuds. The Shellooh profess Islamism; they have Imams and learned men of their nation; they have given sovereigns, not only to Marocco, but to all North Africa and to Spain: the founders of the dynasties of the Almoravides and Almohades were Shellooh.

About the other divisions of the Amazirgh race, improperly called Berber, we have still less information than about those of Marocco, who have been till now the most accessible to Europeans. [For the Kabyles of Algiers, see ALGIERS.] The Kabyles are loosely calculated by Graberg and others to be nearly one million in the whole state of Algiers; but we have no account of any traveller who has lived among them in their dashkrahs in the Atlas. The same may be said of the Amazirgh or Kabyles of Tunis, who are called Zuaghes or Zuaves, and whom travellers have generally confounded with the Arabs; and the Moors of the towns call indifferently the Berbers and the Bedoween Arabs, who live in the interior, by the name of Kabyles. M'Gill, in his account of Tunis, does not even mention the Berbers, as if there were no such race, although we know the names of several Amazirgh tribes near Kerwan and towards the island of Gerbi distinct from the Arab or Bedoween tribes. [See TUNIS.]

With regard to Tripoli, the population of that state is essentially Arab. Tully says there are tribes of African Arabs which he distinguishes from the Asiatic Arabs. But it appears they all speak Arabic, and it is doubtful whether there are any Amazirgh tribes at all. The African Arabs of Tripoli have a tradition that they came, in very remote times, from Arabia Felix under Melek Afriki. This Sabæan immigration is mentioned throughout all North Africa as having come by land across the desert. These Sabæans either mixed with the prior colonies of the Amazirghs from Palestine or Egypt, or contributed to form the other and very mixed race of North Africa called Moors. [See MOORS.] But the oasis of Ghadamis south of Tripoli is inhabited by a race not Arab; they are called A'dem; they have a distinct language, which is called Ertana by the Arabs, and they are supposed to be a tribe of Amazirgh like those of Siwah. (Marmol's *Africa;* Edrisi's *Africa;* Leo Africanus, *Description of Africa;* Ritter's *Afrika;* Paulus' Latin translation of an itinerary from Fas to Tafilelt by Ahmed Ben el Hhassan el Metsiovi, written in 1789; Shaw's *Travels in Barbary;* Ottavio Castiglioni, *Recherches sur les Berbères Atlantiques habitans de la Barbarie;* Venture, *Notice sur la Langue Berbère* in Langlès' *Mémoire sur les Oases;* and the other writers mentioned in this article.)

BERBICE, a district of the colony of British Guiana, was first settled by the Dutch in the year 1626. In 1690 the colony had made considerable progress, and the French, who effected a landing, levied on the population a contribution of 20,000 florins. The colony was comprised in the charter of the Dutch West India Company; but an arrangement had been made in 1678, with the family of Van Peere of Flushing, who were in fact the founders and proprietors, by which it was granted to them in perpetuity. In 1712 a flotilla of French privateers attacked the settlement, and exacted a contribution of 300,000 florins, which was finally paid by the house of Van Hoorn and Company, who received in return from the family of Van Peere a cession of three-fourths of the concern. In 1720, the proprietors, not having sufficient capital for the cultivation of the land, raised a loan in shares, to be employed solely in the production of sugar, and from this date the colony rapidly flourished. Coffee was introduced from Surinam, and a fort was built at the confluence of the Canjee with the Berbice. A negro insurrection in 1763 threatened the colony with destruction; nor was it subdued till the arrival of a strong force from Holland. Six years after the woods were set on fire, as it was supposed, by some rebel negroes, and the conflagration extended from the river Courantyne to the Demerara, destroying the forests and devastating several rich plantations. In 1781 Berbice fell into the hands of the British, but was re-captured by the French in the following year. In 1796 it again surrendered to the British forces with the rest of the Dutch settlements on this coast, but they were all restored to Holland by the treaty of Amiens in 1802. The limits of the colony, which formerly extended no farther to the eastward than the Devil's Creek, were, after the surrendering of Surinam to the English, enlarged in 1799 by the addition of the country between that creek and the river Courantyne: the opposite boundary, separating it from Demerara, passes from the mouth of Abary Creek in a direct line to the southward. On the breaking out of the war in 1803 England again took possession of Berbice, since which time it has remained a British colony, having been finally ceded by the treaty of Paris, August, 1814, with the condition that the Dutch proprietors should have liberty to trade with Holland under certain restrictions. In 1831 Demerara, Essequibo, and Berbice, were united under one government called BRITISH GUIANA.

New Amsterdam, the capital of the colony, was commenced in 1796, the position of Old Amsterdam, which was higher up, being found inconvenient. It stands on the east bank of the Berbice river, immediately above the junction of the Canjee, where it is intersected by canals, and has all the advantages of the tides. It extends about a mile and a half along the Berbice, and each house has an allotment of a quarter of an acre, completely insulated by trenches, which, being filled and emptied with the tide, prevent an accumulation of filth. The government house is of brick, in the European style, and is considered the finest building in British Guiana.

The whole line of sea-coast, extending between fifty and sixty miles, is low and flat. It has a shoal along it which runs off about three miles, so that the land, which from the patches of trees appears like islands, is scarcely visible to vessels till they arrive in very shallow water. There are several small creeks along the coast navigable only for boats. Off the coast the current sets strong to the westward. A beautiful road, sixty feet broad with parapets on each side, runs along the shore to Demerara; the sea-coast has been embanked and luxuriantly laid out in plantations.

Berbice river falls into the Atlantic fifty-seven miles to the eastward of the Demerara in 6° 24′ N. lat.; at its entrance it is four miles wide with low cleared land on both sides covered with trees in clusters, which at a distance appear like islands. In mid channel lies Crab Island, so called from the number of land-crabs on it. Crab Island is low and bushy, about a mile in circumference, with a spit of sand running out to the north and south, dividing the river into two navigable channels, of which the eastern has seventeen to twenty feet, the western only eight to thirteen feet water. As a harbour, however, the advantage of the Berbice is much lessened by a sand-bar across its mouth, over which there is only seven feet water at low tides: this bar reaches eight miles off Crab Island to the northward, and off the east point a spit runs off which at low water dries five miles from the land. The entrance to the river is protected by three strong batteries, two on the eastern side, and the other called York Redoubt, on the western bank opposite Crab Island. About four miles up the river is Fort St. Andrew, a small low fortification with four bastions, surrounded by a ditch and mounted with eighteen 12-pounder guns. An extensive swamp lies in the rear of this fort, which is separated from New Amsterdam by the Canjee, so that it cannot be commanded from any adjacent point. The confluence of the Canjee takes place about five miles from the entrance, and after branching off to the eastward runs a tortuous course to the southward, nearly parallel with the Berbice, at a distance of seven to ten miles, watering the territory between that river and the Courantyne. It is navigable for the small schooners of the country for about fifty miles, when falls and cataracts occur. It is connected with the Courantyne by a creek, and by this route dispatches are brought from Surinam by Indians.

The Berbice also preserves its winding course to the southward, and vessels of two to three hundred tons may go up as far as Fort Nassau, which is thirty miles directly inland and about fifty by the course of the river. Its banks are low and covered with sugar and coffee plantations: several small creeks branch off on each side, but are only accessible to boats. Beyond Nassau the Berbice is still navigable for small vessels for many miles. Its source is among the mountains which bound the colony to the southward, at the distance of about sixty miles inland from the sea-coast. It is high water at the entrance at ten minutes after six, full and change of moon; spring tides rise eleven feet and neap tides eight: the flood runs to the westward. Crab Island, at the entrance of the river, is in 6° 24′ N. lat., 57° 12′ W. long.

The population of the district, according to the latest return yet transmitted (1833), was as follows:—

	Males.	Females.	Total.
Whites . . .	431	139	570
Free coloured people	671	980	1,651
Slaves . . .	10,243	9,077	19,320
Total . .	11,345	10,196	21,541

About one-half of the white persons, and nearly the whole of the free coloured population, resided in New Amsterdam. The numbers of the former were—males 161, females 95, total 256; and of the latter—males 527, females 779, total 1306. The number of births in the same year, throughout the district, was 507, the number of marriages 75, and the deaths 622.

There is a free-school in New Amsterdam, which was established in 1829, with funds supplied by the government, but it has since been supported by voluntary contributions: these have so much fallen off of late, that it is probable the whole expense must soon be defrayed by the colonial government. The system of instruction is that known as Dr. Bell's. The number of scholars in 1833 was 75, of whom 50 were boys, and 25 girls. There are eight private schools, but the number of their scholars is not known.

The whole district is under the ecclesiastical care of the rector of New Amsterdam, and is in the diocese of the bishop of Barbadoes. The living, which is in the gift of the governor of British Guiana, is of the yearly value of about 600*l.* sterling. The church, which is situated in New Amsterdam, is capable of containing 500 persons.

Berbice produced in 1833—

Sugar	11,858,006 lbs.
Rum	339,398 gals.
Molasses	458,007 gals.
Coffee	1,871,852 lbs.
Cotton	416,731 lbs.

in addition to the provisions required for the consumption of the inhabitants. The number of horses in the district in *that year was 214,* and of horned cattle 12,743.

The commerce of the district in 1832 was of the following value:—*Imports 86,815l.*, consisting principally of grain, dried fish, and lumber, from our North American colonies, and plantation stores from this country. Exports 332,933*l.*, which consisted almost exclusively of sugar, rum, coffee, and cotton, and were principally brought to England. No detailed account of a later date has yet been received. The number of ships that entered in 1833 was—

	Vessels.	Tons.
From Great Britain . .	28	7,435
„ British Colonies .	246	14,354
„ United States of America	1	138
„ other foreign states .	14	1,146
Total . .	289	23,073, 1573 men.

The ships that cleared outward in the same year were—

	Vessels.	Tons.
To Great Britain . .	29	7,465
„ British Colonies .	279	16,340
„ United States of America	2	280
„ other foreign states .	2	305
Total . .	312	24,390, 1686 men.

(Bryan Edwards's *West Indies;* Bolingbroke's *Voyage to the Demerary,* &c., 1807; Purdy's *Colombian Navigator;* Arrowsmith's *Chart; Government Statistical Tables.*)

BERCHTESGADEN, or **BERCHTÖLSGADEN**, a district in the circle of the Isar in Bavaria, lying at the south-eastern extremity of the kingdom, and bounded on the east by the Salzburg territories in the 'province above the Ens,' or Upper Austria. It has an area of about 147 square miles, with a population of about 8400 souls. Berchtesgaden is as romantic and picturesque a region as any among the Alps, being encircled by lofty mountains, such as the Untersberg in the north, and the 'Hohe Göhl' in the south, which rises behind the town of Berchtesgaden. It contains numerous delightful valleys, the most considerable of which lies along the course of the Achen. This river traverses the centre of the district, and flows out of the King's or St. Bartholomew's Lake, a piece of water nearly eight miles in length, about one mile and two-thirds in breadth, eighteen in circuit, and walled in by high mountains. The district also contains the Obersee, a small lake connected with the preceding, and several smaller lakes. The whole face of the country is covered with lonely dwellings, standing like hermitages on hills, precipices, and narrow plateaus, and its natural features render it an object of great interest as well as of constant resort to the naturalist, the artist, and the stranger. The climate is raw and keen: grain does not thrive; but the inhabitants find ample resources in its forests, meadows, and gardens, no less than in the salt-mines, and their well-known skill in manufacturing articles of wood, ivory, bone, &c. Berchtesgaden indeed resembles a scattered manufacturing town; and the industry of the females is such, that they may frequently be seen carrying on three occupations at the same time,—driving cattle before them, carrying burthens on their heads, and knitting as they go along. The government salt-works, whose shafts when lighted up have the appearance of a fairy-palace, are situated on the Salzberg, at Frauenreuth, east of the town of Berchtesgaden, and yield annually about 7500 tons of pure salt. This district also produces mill-stones, lime, gypsum, and turf. The profits from the industry of its inhabitants are estimated at upwards of 14,000*l.* sterling (150,000 gulden) per annum. The Protestant part of the population migrated to Berlin and Brunswick in the year 1732. Berchtesgaden, the principal town, lies in 47° 39′ N. lat., and 12° 58′ E. long., at an elevation of 2018 feet above the level of the sea, and is traversed by the Alben, or Achen, which runs into the Salzach. It has a judicial tribunal, an office of woods and forests, an antient cathedral-church with pointed marble towers, a Franciscan monastery, and a charitable asylum; but its most striking embellishment is the 'Fürstenstein,' a royal palace beautifully situated, in which are a library, and the principal depôt for the articles in wood, &c., which the district manufactures. There are a number of stocking-looms in the town. North of it lies 'Schellenberg,' a market-town on the Alben, close to the Austrian borders, with about 1500 inhabitants. Near this place is an antient defile, the egress from which into this secluded district is marked by the following inscription carved in a precipitous mass of rock: 'Pax intrantibus et inhabitantibus.' South-west of Berchtesgaden is 'Ramsau,' on the Klausenbach, a village of 800 souls, with quarries and mill-stone works in its vicinity. [See FRAUENREUTH.]

BERCHTOLD, LEOPOLD, COUNT, a native of Germany, born in 1758, is celebrated for his philanthropic exertions, having spent thirteen years in travelling throughout Europe, and four in Asia and Africa, with a view of mitigating human sufferings, to which object the whole of his life was devoted. He was the author of plans for preventing the dangers of hasty interments, for discovering the true causes of sickness incident to seamen, and for curing them. In 1797 he published at Vienna directions for the cure and prevention of the plague, having travelled two years throughout Asiatic and European Turkey for the purpose of investigating its symptoms and determining its character. The Royal Academy of Sciences at Lisbon ordered these directions to be translated into Arabic, French, and Portuguese. The count had previously made some discoveries as to the application of oil in this disease; and in the course of his remarks on the nature of the plague, he states, that out of upwards of a million of inhabitants carried off in Upper and Lower Egypt in the course of forty years, it had not been known that either an oilman or dealer in oil had fallen its victim. Count Berchtold attempted to effect reforms in the state of European police, and wrote some pamphlets on the subject, which were printed and distributed by him gratuitously in different countries. Some of his plans he laid before the French National Assembly, and he submitted to that body observations on the necessity of making swimming and diving a branch of national education. Possessed of an ample fortune, he offered prizes for essays on various subjects connected with his philanthropic plans: among others, one of a thousand florins for the best treatise on 'Benevolent Institutions;' and not content with this, he was also the founder of several such establishments. He was also active in making known the advantages of vaccination. During a famine in Germany in 1805-6, he procured for the poor supplies of food from districts in which famine did not prevail; and in the course of the revolutionary war he converted the palace of Buchlowitz, on his estate in Moravia, into an hospital for the sick and wounded. At this place he died, July 26, 1809, of a contagious nervous fever. He was a courageous and enterprising traveller, possessed of agreeable manners, the charm of which was heightened by the variety and extent of his information. He had been created a knight of the military order of St. Stephen of Tuscany.

The results of the experience and observations of Count Berchtold, as a traveller, will be found in the following work, which was dedicated to Arthur Young, and published in London in 2 vols. 12mo.:– 'An Essay to direct and extend the Inquiries of patriotic Travellers; with further Observations on the means of preserving the Life, Health, and Property of the inexperienced in their Journeys by Sea and Land: also a series of Questions interesting to Society and Humanity, necessary to be proposed for solution to men of all ranks and employments, and of all nations and governments, composing the most serious points relative to the objects of all Travels.'

To these volumes is appended a history of English and foreign works, intended for the instruction and benefit of travellers, and a catalogue of the most interesting European travels which have been published in different languages.

BERDYCZEFF, a considerable town in the province of Volhynia in Western Russia, and the capital of the circle of Staro-Constantynof, lies upon the Gulopiat, is the largest place in the whole province, but though it possesses wide streets, many spacious houses, and some open squares, is altogether a badly built and wretched town. It contains several churches and two fortified Carmelite monasteries, in one of which is a miraculous image of the Holy Virgin, on which Pope Benedict XIV. bestowed a crown of gold in 1753. The number of its inhabitants is about 10,000, and a very considerable portion of them are Jews; independently of the brisk trade which they carry on, they have three fairs in the course of the year, at one of which the sales of merchandise are from 150,000*l*. to 200,000*l*. in value, and several thousands of horses, chiefly brought by the Kalmucks and Tartars, are exposed for sale. Berdyczeff is likewise one of the principal marts for furs, which are brought from the northern provinces of Russia, and bought in considerable quantities by the Turkish dealers. The other articles in which it traffics are, grain, wine, cattle, leather, honey, and wax. 49° 52′ N. lat., 28° 55′ E. long.

BEREGH, a large county in the province 'this side of the Theiss,' and in the north-eastern part of Hungary, about 1117 square miles in area. It lies between 48° 5′ and 48° 54′ N. lat., and 22° 15′ and 23° 18′ E. long.: its north-eastern districts are separated from Austrian Galicia by a south-eastern arm of the Beskide branch of the Carpathian Mountains. Beregh is divided into two distinct portions by the highroad which leads from Unghvár through Munkács into the county of Marmaros, by which it is bounded on the east and south. One of these, the northern, is covered with ranges of mountains, many of which are crowned with perennial snow, and some of which exceed 3600 feet in elevation above the level of the sea; the other, forming the southern portion, is a continued level of plain or swamp. The varied character of these two regions, on which nature has bestowed a diversity of soil which yields whatever can be grown or raised in any other part of the kingdom, has obtained for Beregh the designation of 'Hungary in miniature.' The northern parts of the county and the western are traversed by the Latorcza and its hundred arms; the eastern by the Ilosva and Borsova, the first of which mingles with the Szernye in the great Szernye swamp; and the southern and south-western are watered almost along the whole line of their borders by the Theiss. Beregh is full of minor streams and rivulets. The great swamp of which we have just spoken, called by the natives the Szernye-Mocsar, or Gáther-See, is situated in the south-eastern part of the county, and extends over an area of upwards of forty-two square miles. In the west is a canal constructed by Count von Schönhorn, between the years 1816 and 1824, for the purpose of draining the land inundated by the Latorcza, by means of which he has already recovered above 14,000 acres.

The southern districts of Beregh are much milder in climate than the northern, and of much greater fertility. All kinds of grain are cultivated, though not to an extent adequate to the internal consumption; large quantities of oats and hemp are produced in the valleys: much fruit is raised, and of the wine, which is partially made, the best is produced in the vicinity of Bereghzasz and Muzsaly. Both the mountains and plain are studded with dense and spacious forests, so that, of the 718,160 acres of soil which are productive, only 293,550 are under the plough; the remainder, exclusive of 26,250 in meadows and pastures, and rather less in vineyards and gardens, is wholly occupied by forests, in which the fir, oak, and ash are of luxuriant growth, and from which excellent timber is obtained. Large herds of swine and cattle are reared in these forests, and they abound in game. In the south and west particularly, fish is plentiful: and crabs of enormous size, as well as river-tortoises of delicate flavour, are abundant.

Of mineral products the mines near Bereghzasz formerly yielded gold; iron is raised near Mungáts and Szeleszt, and in other parts of the county, lime, gypsum, porcelain-earth of brilliant whiteness and fine quality, alum, mill stones, the opal, jasper, and what are called Hungarian diamonds, or crystal, are obtained. The most valuable, however, of these products are the immense beds of solid alum which lie between the Borsova and the Szernye swamp, and between Bereghzasz and Bene. Acidulous springs exist in various parts, such as at Ploszkó, Bakova, Luberka, &c.

The population of Beregh has been greatly on the increase of late years; for it was but 64,223 in 1794, rose to more than 81,000 in 1805, and is now upwards of 92,000 souls. Of these about 53,000 are Roman Catholics and Greeks who have conformed to the Roman Catholic persuasion, and about 23,000 are Protestants: the Jews exceed 4000. The inhabitants are, by descent, principally Ruthens or Russians, who migrated to the south simultaneously with the Magyárs, but settled in the districts in and about the Carpathians; the native Hungarians do not constitute one-third of the people; the German race are found chiefly on the domains of the Counts von Schönhorn, who are the proprietors of two-thirds of the whole soil; and the Sclavonian of Bohemian extraction is met with in many parts. The chief occupations of the people are agriculture, the rearing of cattle, and mechanical pursuits: but there are few quarters in Hungary where the intellect has been less cultivated than in this county.

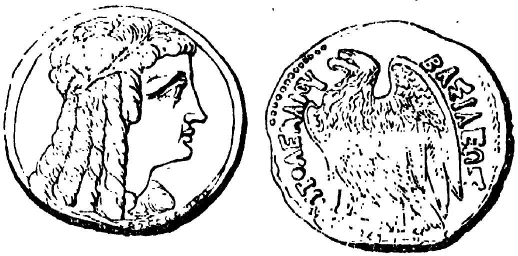
Beregh contains nine market-towns, 261 villages and hamlets, and seven prædia or independent settlements. It is divided into four circles, viz., Munkács, the chief town of which bears the same name, is fortified, lies on the Latorcza, and has about 5000 inhabitants: Felvidek, of which Beregh on the Szernye swamp (in 48° 12′ N. lat., 22° 25′ E. long.) is the largest and most populous spot; Tiszahat, including the towns of Naméng, Vari, and Bereghzasz, or 'the Saxon Beregh' (in 48° 11′ N. lat., 22° 39′ E. long.), the capital of the county, which is celebrated for its millstones, and has a population of about 4300 souls; and Kászonye, of which the principal town bears the same name, and is in a fine corn country.

BERENGER, one of the most learned divines of the eleventh century, was a native of Tours. He was made treasurer of the church of St. Martin in that city, and afterwards became archdeacon of Angers. Berenger, Lanfranc, and Anselm, were the restorers of logic and metaphysical studies in Europe, with the assistance of Aristotle's works, which were about that time imported into France from the Arabian schools of Spain. Berenger was one of the first who employed logical reasoning in the study of the Scriptures, which had till then been interpreted according to tradition and the authority of the fathers. Berenger and Lanfranc asserted the principle of harmony between faith and reason, religion and philosophy. They were, if not the founders, at least the promulgators of the scholastic theology which became so common in the schools during the middle ages. (See Mosheim's *Ecclesiastical History*, and Brucker's *Historia Critica Philosophiæ.*) Berenger maintained the doctrine of Scotus, that 'the bread and wine used in the sacrament of the Eucharist were not transformed into the body and blood of Christ, but preserved their natural and essential qualities, and were only to be considered as external symbols of the body and blood of the Saviour.' This had been already a subject of controversy in the Latin church, but as yet no council had definitively decided upon the question. (For the various opinions entertained upon the subject in, and previous to, Berenger's time, see Martene's *Voyage Littéraire de deux Bénédictins de la Congrégation de St. Maur*, tom. ii. p. 126.) Pope Leo IX. procured the condemnation of Berenger's doctrine by the councils of Rome and Vercelli, 1049-50, and the book of Scotus was also committed to the flames. Henry I. of France assembled a council at Paris for the same purpose, when Berenger was again condemned and threatened with temporal punishment. The king, as abbot of St. Martin of Tours, deprived him of the revenue which Berenger derived from that church. Pope Victor II. summoned a council at Tours in 1054, at which the monk Hildebrand, afterwards Gregory VII., appeared as the pope's legate. Berenger was induced by denunciations and threats to retract his doctrines concerning the Eucharist and to make his peace with the church. We are not, however, sufficiently acquainted with the proceedings of this council to know how far and in what terms Berenger retracted. We find him soon after again maintaining his former tenets, upon which Nicholas II. summoned him to Rome in 1058, and the council assembled in that city in the following year drew up a confession of faith on the subject of the Eucharist, stating 'that the bread and wine after the priest's consecration were not only a sacrament but the real body and blood of Christ, and consumed as such by the faithful.' Berenger signed this confession, but soon after returning to France abjured it again publicly. Alexander II. endeavoured by persuasion to induce Berenger to adhere to the confession of the council of Rome, but unsuccessfully. Berenger had powerful friends in France who supported him. At last, Hildebrand, who professed a high esteem for Berenger, having become pope under the title of Gregory VII., summoned him to Rome in 1078, when another council was held, before which Berenger drew up a new confession of his doctrine, in which he professed to believe that the bread and wine after consecration became the true body and blood of Christ. Berenger's enemies, not thinking this declaration sufficiently explicit, another council was held in 1079, and Berenger was induced to declare that bread and wine were, by the mysterious influence of the words of the Redeemer, 'substantially changed into the true, proper, and vivifying body and blood of Christ, not only in the qualities of external signs and sacramental representations, but in their essential properties and in substantial reality.' This is the famous doctrine of transubstantiation; Berenger, in his confession of the year before, seems to have attested only his belief of the real presence. Such is the opinion of Mabillon and of some other theologians, both Catholic and Lutheran, concerning Berenger's doctrine. (See Mosheim, b. iii. part ii. ch. 3, note 23, by Dr. Murdoch.)

After the last declaration of Berenger, Gregory VII. showed him great kindness and esteem, and allowed him to return to France; but Berenger once more retracted this his declaration of 1079. Lanfranc wrote against him, Berenger replied, and the controversy was carried on according to the scholastic method. Gregory VII. took no further notice of the dispute, nor of Berenger's retractation. (See a note by Dr. Murdoch in his edition of Mosheim, where he refers to a curious treatise by Berenger, which throws much light on his intercourse with Gregory VII., and on the opinions of that pontiff on the subject of the controversy; which treatise is found in Martene's *Thesaurus Anecdot.*, tom. iv. p. 99.) Gregory seems to have been for adhering to the words of the Scriptures, 'Hoc est corpus meum' (Matt. xxvi. 26), and not inquiring further into the nature of the mysterious presence.

Berenger, fatigued and grieved with this long controversy, retired to St. Cosme, near Tours, where he spent the last years of his life in religious and ascetic exercises until 1088, when he died. (See Lanfranc's works; Berenger's letters in the *Thesaurus Anecdotorum*; and Lessing's *Berengarius Turonensis*, Brunswick, 1770, in which was published for the first time Berenger's reply to Lanfranc's treatise *De Corpore et Sanguine J. C.*, which reply Lessing discovered in the library of Wolfenbuttel.)

BERENI'CE (1), (Βερενίκη, the Macedonian form of Φερενίκη), one of the four wives of Ptolemy I., the founder of the dynasty of the Lagidæ in Egypt, and the mother of Ptolemy II., called Philadelphus. Berenice had a son, Magas, by a former husband, who was afterwards king of Cyrene.



Brit. Museum. Copper. Weight 308 grains.

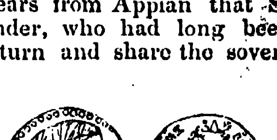
The head is said to be that of Berenice, the wife of the first Ptolemy: the inscription on the other side is 'King Ptolemaeus.'

BERENI'CE (2), a daughter of Ptolemy Philadelphus by Arsinoe the daughter of Lysimachus. She was the sister of Ptolemy III., Euergetes, and was given in marriage B. C. 252 by her father to Antiochus II. king of Syria, called Theus or God, who divorced his wife Laodice on the occasion. After the death of Philadelphus, Antiochus divorced Berenice and took back Laodice, who poisoned her husband and put Berenice to death together with a son whom she had by Antiochus. To avenge his sister's death, Ptolemy III., Euergetes, invaded Syria, put to death Laodice, and overran the empire of the Seleucidæ. [See PTOLEMY.]

BERENI'CE (3), the wife (about B.C. 248) of Ptolemy III., Euergetes: but her parentage is doubtful. She was the daughter of Magas, who was king of Cyrene and half-brother of Ptolemy Philadelphus on the mother's side. Her mother's name was Arsinoe, who, according to Niebuhr's conjecture, was the daughter of Lysimachus and the divorced wife of Ptolemy Philadelphus, as stated in the second article on ARSINOE. But the Berenice there mentioned as the adopted daughter of Magas, ought perhaps to be considered as the real daughter of Magas by Arsinoe, either the divorced wife of Ptolemy Philadelphus, or more probably another of the same name. At least it is certain that Berenice, the daughter of Magas, who married Ptolemy Euergetes, was not the Berenice (2) who was married to Antiochus Theus. If Berenice who married Euergetes was the daughter of Philadelphus and the adopted daughter of Magas, we must suppose, which is not unlikely, that Philadelphus had two daughters of the same name.

This Berenice is said to have made a vow of her hair during her husband's wars in Asia. Conformably to the vow, the hair was placed in the temple of Venus, from which it was stolen, but Conon of Samos declared that it had been taken up to the skies and placed among the seven stars in the lion's tail. Callimachus wrote a poem on the occasion which is now only known from the beautiful translation by Catullus—*De Coma Berenices.* The name of Berenice occurs in the fifth line of the Greek part of the Rosetta inscription, now in the British Museum, with the feminine form of her husband's appellation, Euergetis, 'the benefactress.' Berenice was put to death by her son Ptolemy IV., Philopator, and his infamous minister Sosibius.

BERENI'CE (4), otherwise called Cleopatra, the only legitimate child of Ptolemy VIII. (Soter II.), reigned six months, the last nineteen days of them in concert with her husband Alexander II., who, according to Appian and Porphyry, murdered her nineteen days after the marriage, B.C. 81. It appears from Appian that Sulla determined that this Alexander, who had long been an exile from Egypt, should return and share the sovereign power with Berenice.



Brit. Museum. Gold. Weight 33 grains, and quite perfect.

This coin may probably belong to the Berenice · the inscription is 'Queen Berenice.' Mionet assigns it to Berenice (3).

The portraits of Alexander II. and this Berenice appear frequently on the great wall of sandstone which encloses the temple of Edfu, and the portrait of Berenice is always the same. See Rosellini, plate xxii. fig. 80, 81; and xxiii. 29, which is a full-length portrait of Berenice. Figs. 80, 81, represent respectively the heads of Alexander and Berenice, which are distinguished by the handsome features that appear to have characterized the descendants of the first Ptolemy. It would seem that the great sculptures of the inclosure-wall of Edfu, which cover it on both sides, were executed in the joint reigns of Alexander II. and Berenice, from which fact Rosellini infers that a longer period must be assigned to their joint reign than the nineteen days given by the chronologers. The Athenians made a bronze statue of this Berenice. (Pausan. i. 9.)

BERENI'CE (5), a daughter of Ptolemy IX., Auletes, who began to reign in Egypt B.C. 81, and sister of the celebrated Cleopatra. During the absence of her father at Rome Berenice was made regent, which office she held from about B.C. 58 to B.C. 55. Gabinius, about the close of B.C. 55, came to Egypt with an army and restored Auletes, who put his daughter to death. Berenice first married Seleucus, the pretended son of Antiochus Eusebes, a feeble man, whom, it is said, she caused to be strangled; and afterwards Archelaus, who was also put to death on the restoration of Auletes. (See Clinton's *Fasti Hellenici*, and the authorities there quoted.)

BERENI'CE (6), a daughter of Herodes Agrippa I., who was the son of Aristobulus, who was the son of Herod the Great. (Acts xii.; Matthew ii.) She was the sister of Herodes Agrippa II., before whom Paul preached A.D. 63 (Acts xxv. 13), and the wife of Herodes of Chalcis, who seems to have been her uncle, and left her a young widow. Titus, the son of Vespasian, fell in love with Berenice, who had taken an active part at the time when Syria declared in favour of Vespasian against Vitellius. (Tacit. *Hist.* ii. 2, 81.) Berenice was then a young and very handsome woman. After the capture of Jerusalem she came to Rome (A.D. 75), and Titus is said to have been so much attached to her that he promised to marry her; but on the death of his father he sent Berenice from Rome, much against his will and hers, when he found that the proposed match was disagreeable to the people. (Suetonius, *Titus*.) Juvenal (*Sat.* vi. 156) appears to allude to this Berenice and her brother Agrippa. Racine has written a tragedy on the subject of Titus and Berenice. (See some remarks in the *Biographie Universelle* on the age of Berenice.)

BERENI'CE, in Cyrenaica. [See BENGAZI; and Strabo, p. 836-7. Casaub.]

BERENI'CE, a port on the west side of the Red Sea, at the bottom of a bay, which is described by Strabo (p. 770) under the name of Acathartus (obstructed, see Strabo): the island Ophiodes (Snake Island) is to the south of this: this island produced topazes. Belzoni describes the place which he takes to be the site of Berenice as being near the point where it was fixed by D'Anville (see *Mémoires sur l'Egypte Ancienne, &c.*), a little south of the parallel of 24°. Ptolemy gives the latitude of Berenice at 23° 50′, which is also the latitude of Syene. Belzoni says the town measured 1600 feet from north to south, and 2000 from east to west. A small temple built of soft calcareous and sand stone, in the Egyptian style, is 102 feet long and 43 wide. A part of the wall which was uncovered by digging, was sculptured with well-executed figures in basso-rilievo, in the Egyptian style: hieroglyphics were also found on the wall.

The recent survey of the Red Sea, made in the years 1830-1-2-3, by Commander R. Moresby, and Lieutenant T. G. Carless of the East India Company's service, confirms the description of Strabo, and the accuracy of the position assigned by D'Anville as the site of Berenice. According to their chart, Berenice is at the bottom of a bay, the north side of which is formed by the promontory called Ras Benass, which is about 19 miles E. by S. from Berenice. A range of high mountains runs along this part of the coast, leaving near the bay a small narrow strip on which stand the supposed ruins of Berenice. The emerald mountains, which lie near the coast and N.W. of Berenice, are of great height · one of them, called Jebel Wady Lehuma, about 34 miles N.W. of Berenice, is marked in the survey as visible at 120 miles distance; but this is probably not quite correct, as it would give the mountain a height, in round numbers, of 9600 feet. Two peaks which lie S. of Berenice and near the coast, are marked respectively 4440 and 4036 feet. There is good anchorage inside of Ras Benass, but the bottom is very foul. Off Ras Benass, a few miles nearly due S. is the small island Macour, where the variation is marked 8° 4′ west. The lat. of Berenice according to the recent survey is about 23° 56′, very nearly that of Ptolemy; the long. is about 35° 34′ E.

This town of Berenice was built or restored by Ptolemy Philadelphus; and a road was formed from Berenice to Coptos on the Nile (26° N. lat.), by which the merchandise of Arabia, India, and Ethiopia was conveyed on camels to the Nile, and the troublesome navigation to the head of the gulf of Suez was avoided. This route was chosen, because water was found at certain places in greater abundance than is common in the arid desert between the Red Sea and the Nile. The halting places, ten in number, between Berenice and Coptos, were of course determined by the situation of the wells (Plin. vi. 23.): the distance from Berenice to Coptos is 258 Roman miles according to Pliny, or 266 according to the Antonine Itinerary. Belzoni, from a rough calculation, concludes that Berenice may have had a population of about 10,000. (See Belzoni's *Researches, &c.*, ii. 73, &c., 8vo. ed.)

BERENI'CE, *Panchrysos*, 'all golden,' (Plin. vi. 29.) is placed by D'Anville on the west coast of the Red Sea, between 20° and 21° N. lat., near the gold mines of Jebel Ollaki, or Allaki.

BERENI'CE, Epi-dires, situated near the entrance of the Red Sea, according to Pliny, on the African side, and on a projecting piece of land. It was so called from being near a place named Dira. (See D'Anville, *Mémoires*, quoted above.)

BERESINA, The, (BEREZYNA or BERESNA,) a river in Western Russia, which has two sources, one of which lies in the circle of Vileika, in the province of Minsk, and the other in the circle of Oshmiana, in the province of Vilna. Its waters flow in a broad channel and in a south-eastern direction, generally between low and swampy banks edged with reeds and rushes; it becomes navigable in an early part of its course, and is not bordered by any high ground except in the vicinity of Borissoff. The Beresina, after flowing past Beresna or Beresino (a small town of about 900 inhabitants in the province of Minsk), and Bobruisk, falls into the Dnieper, after a course of about 260 miles, to the north of Reshitza and south of Horwale, in the circle of Rogatsheff and province of Mohileff. During this course it receives several small rivers, the most considerable of which are the Plissa, the Swisloez, which runs through Minsk, and the Ola. The Beresina has become memorable from the disasters which befel the French army when Napoleon, on his retreat from Moscow, effected a passage across it, about nine miles above Borissoff, on the 26th and 27th November, 1812. The Beresina or Lepel Canal, by uniting the Dnieper with the Düna, has established a navigable communication between the Black Sea and the Baltic: it is about five miles long, and unites the Düna with the Beresina by connecting Lake Plavia, out of which the Sergutsh flows into the Beresina, with Lake Bereshta: this last lake makes its way into the Essa by the channel of the Bereshta river, and the Essa falls into Lake Beloje, which is connected with the Düna through the river Ulla. The whole line from the Beresina to the Ulla is about sixty-five miles in length, has been rendered navigable at a considerable expense, and is provided with several branch canals. There is a small river also, called the Lesser Beresina, in the government of Mohileff.

BERESNA or BEREZNA, a small town of Little Russia in the province of Tshernigoff, is situated on the Desna at a distance of thirty-six versts (about twenty-four miles) west of Tshernigoff; it contains six churches, and, inclusive of the villages dependent upon it, has a population of about 5500 souls. 51° 26′ N. lat., and 31° 50′ E. long. (Vsevolovsky.)

BERESOFF, an extensive circle in the province of Tobolsk, in Siberia, traversed by the Ob, and, according to Georgi, situated between 61° and 77° N. lat., and 51° and 78° E. long. Its western boundaries are the Carian arm of the Icy Sea, and the most northern part of the Ural Mountains, which separate it from the province of Archangel; its southern are the circles of Turinsk and

Surgutsh, and its eastern that of Turuchansk; its northern boundary is the Icy Sea. The larger portion of this immense district lies within the Arctic circle. Its waters are the Lower Ob, the Carian Sea, the lower line of the Ob, and the gulph of Tassish, together with all their tributaries. The chain of the Ural, which runs as far north as the Carian Sea, is, so far as it respects this circle, of moderate elevation, forming a humid, and in many parts impassable barrier of rock. The woods, which terminate at 65° N. lat., gradually decline into insignificance; from that point they are succeeded by shrubs and bushes, which cease to grow at 67°. The inhabitants are principally Ostiaks of the Ob, and Samoyedes: the former dwell in wretched hovels of wood or earth, occasionally changing their place of residence, and existing upon the produce of their fishing and hunting; the latter wander among the swamps of northern Russia, and depend on the same pursuits as the Ostiak, but with the aid of their rein deers. The least numerous tribe in this remote region are the Voguls, a nomadic race, who are only met with in the circles of Beresoff and Turinsk, and whose whole property is a few hunting weapons, a lance, a couple of hides, and one or two dogs. The Russians, consisting of Cossacks, townsmen, and labourers, reside mostly in block houses, but those within the Arctic circle live together in groups of what are termed 'Simovie,' or winter-cabins, in the neighbourhood of which the Ostiaks frequently erect their hovels. Where soil and climate admit, they keep a couple of cows, some sheep, and swine; but no horses will thrive, and instead of that valuable animal, dogs are used as beasts of draught for transporting wood, &c. The soil, which is in general unsuited to the growth of grain, is however so productive in the districts between Tobolsk and Beresoff, as frequently to yield forty grains for every grain of corn which is sown. At Beresoff, in particular, the spring growth of vegetation is said to be astonishingly rapid; yet in summer, the alternations of heat and cold are so excessive, that the natives never think it safe to lay aside their furs. It is not unusual for a fine clear day to be succeeded during the night by a heavy fall of snow; and frosty nights generally set in with the month of August.

Beresoff, or Beresova, 'the town of birch-trees,' was founded in 1593, and became the capital of the circle in 1772: by the Ostiaks it was formerly called 'Soungoutshe-Vacha,' and by the Voguls, 'Khal-ouche,' or the place of happiness, the terms Soungoutshe and Khal signifying 'happiness' in their respective languages. It is built on the steep left bank of the Sosva or Lesser Ob, of twenty versts (about fourteen miles) in a north-easterly direction above the junction of that stream with the Ob. The Vogulka, another stream, coming from the south-west, flows into the Sosva, about two miles to the east of Beresoff. Erman tells us (*Voyage from Berlin to the Icy Sea*, in 1828), that 'the town, on his first walk through it, produced that impression upon his mind which might be expected from the site of the remotest of human habitations; the sky was overspread with a monotonous gloom of clouds, and the day scarcely distinguishable from the twilight: it was veiled in that "sumratshnui dèn," or semi-darkness, which a Russian poet justly describes as producing a talismanic effect on the heart of every northman, as one of those blessings, over the loss of which the poor Samoyede, were he under a Neapolitan sky, would pine, as over the deprivation of his dearest treasure.' The houses, about 200 in number, are built with planks of immense size, are entered in general from a lofty flight of steps, and connected by wooden walls with the 'bányi,' or baths, storehouses, &c., which are of inferior height and form a court-yard. Though there are wide intervals between them, they are ranged in streets running towards the north and east. On the opposite side of the Soswa or Sosna (pine-tree), which is with great propriety so called from the handsome forest of pines, that stretches along the precipitous banks of that stream, Erman describes 'the whole expanse to the horizon itself, as one uninterrupted plain of snow and ice;' nor 'was there sound or object to break the cheerless gloom which pervaded the streets of Beresoff, but columns of smoke ascending from the chimneys.' It contains three churches and about 1500 inhabitants, mostly Cossacks, and inclusive of numbers of exiles, who are banished to this distant and inhospitable country for political or other offences. The people of the town earn their livelihood by the chase and fishing: they barter furs, skins, &c., for flour, meat, tobacco, ironware, and brandy brought by the Tobolsk dealers, whose craft are floated down the Irtish into the Ob. Beresoff is the favourite place of resort for the Ostiaks and Voguls, and has a very considerable annual fair. The imperial favourite, Prince Menzikoff, died in disgrace in this town in 1731. It is situated about 930 versts (620 miles) to the north of Tobolsk, in 63° 56′ N. lat., and 65° 15′ E. long. The pallisaded spot, Obsdorsk, which lies on the right bank of the Polui, not far from the mouth of the Ob, and is the most northern possession of Russia in this quarter of the globe, is a dependency of Beresoff. It is described by Erman as containing a church of wood, some dark wooden-houses (Vsévolovsky says five only) inhabited by Cossacks, and several humble Ostiak cabins, or 'Yurtas,' which are scattered in a picturesque manner on the hills, separated by narrow clefts, which form the right bank of the Polui. Obsdorsk is 1188 versts (about 792 miles) to the north of Tobolsk.

BERG, formerly a duchy in the west of Germany, bounded by the duchy of Cleves on the north, by the earldom of Mark and the duchy of Westphalia on the east, by the Westerwald, or rather the Nisterwald (forest of the Nister, a small river), on the south, and by the Rhine on the west. In the year 1802 the duchy of Berg contained an area of 1134 square miles, with 291,710 inhabitants, twenty-four towns, and eighty-one villages and hamlets, and its net income was about 300,000 gulden, or 29,000*l.* That portion of the duchy which lies towards the Rhine is level and productive, but the eastern parts of it are covered with forests and hills. It does not yield grain, or support cattle enough for the use of the population, which is denser than in any other part of Germany: but it abounds in copper, lead, quicksilver, and particularly iron, and contains numerous iron, steel, linen, cotton, woollen, and soap manufactories. The yearly amount of merchandise of all kinds which it produces is estimated at upwards of 1,500,000*l.* sterling.

After the line of the first counts of Berg had become extinct, which occurred in the year 1348, their possessions devolved to the then prince of Juliers (*Jülich*); in 1380 they were raised to the rank of a duchy, and forty-three years afterwards the principality of Juliers was incorporated with them. This line of princes becoming also extinct in 1511, both Berg and Juliers fell to the dukes of Cleves; and again their line failing in 1609, the elector of Brandenburg and the elector-palatine both laid claim to the dukedom, which at that period comprehended likewise the earldoms of Mark and Ravensberg. After a long series of wars they agreed, in 1624, to hold the entire territory in joint possession; and this state of things subsisted until the year 1666, when they divided it between them. Berg was assigned to the electors-palatine, whose possessions subsequently merging into the electorate of Bavaria, which was created a kingdom at the beginning of the present century, it was ceded to France by the Bavarian crown in the year 1806. It now became the chief province of the grand-duchy of Berg, instituted by Napoleon on the 15th of March in that year, and in conjunction with this duchy comprised the bishoprick of Münster, the earldoms of Mark, Lingen, Tecklenburg, Bentheim, Dortmund, and other territories in those quarters, extending altogether over a surface of about 6698 square miles, and possessing a population of nearly 900,000 souls. Joachim Murat, Napoleon's brother-in-law, was constituted sovereign of this new principality, and retained it until the year 1808, when Napoleon placed him on the throne of Naples. On the 3rd of March in the following year, Napoleon's nephew, then crown-prince of Holland, was made grand-duke of Berg, with reservation of the governing power to France until he became of age. Two years afterwards Napoleon, however, stripped the grand duchy of certain districts amounting to 1281 square miles in area, for the purpose of incorporating them with the French empire. After a brief existence of eight years the grand duchy was extinguished altogether, and its component parts being transferred to Prussia, under the settlement made by the Congress of Vienna in 1815, the larger portion of them was included in the province of Düsseldorf, and the remainder was consolidated with that of Juliers, Cleves, and Berg.

BE'RGAMO, a city of Lombardy, and the capital of a province of the Lombardo-Venetian kingdom, in 45° 42′ N. lat., and 9° 37′ E. long., twenty-five miles N.E. of Milan, and twenty-eight N.W. of Brescia. It is built on the brow of a hill, commanding an extensive view of the Milanese plain towards the south, while on the northern side the Alps of Valtelina and the Grisons are seen rising one above the other. Bergamo lies between and at a short distance from the Brembo and the Serio, two affluents of the Adda. The province of Bergamo is bounded on the east by that of Brescia, on the north by Valtelina, on the north-west by the province of Como, and on the south and south-west by that of Milan. The greater part of the ground is very mountainous, consisting chiefly of the valleys of the Brembo and the Serio, and the upper valley of the Oglio above its entrance into the Lake of Iseo. The principal productions of the soil are wine, oil, and fruits; vast plantations of mulberry-trees supply the silk worms, which constitute the chief wealth of the country. The mountains afford pasture to numerous flocks of sheep; and many canals serve for the purpose of irrigation. Iron-mines and iron-works, and manufactures of woollens, are also branches of industry in this province. The population is about 330,000. The people are hardy, laborious, and intelligent.

The town of Bergamo and its extensive suburbs contain 30,000 inhabitants. The town is surrounded by walls and ditches, and has a castle on the summit of the hill. Among the churches of Bergamo, the most remarkable are the cathedral; the church of Santa Maria Maggiore, which has several good paintings, and a fine monument to the memory of Bartolomeo Colleone, a celebrated captain of the fourteenth century; the church of the monastery of St. Grata, which is almost entirely covered with gilding and gold ornaments; that of St. Alessandro, which is rich in paintings; and the church of St. Augustine, in which is the tomb of Ambrogio Calepino, the lexicographer, who was a native of Calepio, near the lake of Iseo. The Academy of Painting, founded by Count Giacomo Carrara, has several paintings of Titian, Tintoretto, Giorgione, Paul Veronese, and other great masters. There are also private galleries, belonging to the families Scotti, Rosa, Terzi, &c. Bergamo has given birth to several painters of note, such as the elder Palma, Moroni, Lotto, Cavagna, &c. (See Tassi, *Vite del Pittori, Scultori, ed Architetti Bergamaschi*, 2 vols. 4to. 1793; and Bartoli, *Pitture, Sculture, ed Architetture delle Chiese ed altri Luoghi pubblici di Bergamo*, 1774.) Bernardo Tasso, a poet of some merit, and father of the celebrated Torquato Tasso, and the learned Tiraboschi, the historian of Italian literature, were natives of Bergamo. One of the most remarkable buildings of Bergamo is the Fiera, in which the annual fair is held, in the month of August. It is a vast quadrangle, with three gates on each side, and courts and streets within: it contains 600 shops, in which all the various manufactures of Lombardy, and other provinces of the Austrian empire, are exposed for sale. During the fair of 1833, goods were sold to the amount of between twenty-five and twenty-six millions of livres, or above one million sterling: one-third of the whole consisted of silk. (*Bollettino Statistico di Milano.*)

Bergamo is a bishop's see; it has a public library, with 45,000 volumes; a lyceum, and a gymnasium for public instruction, besides the seminary for the diocese, a college for boarders, and several private establishments for education. The whole province had, in 1832, 487 elementary schools for boys, and 452 for girls, which were attended during that year by 20,898 of the former, and 18,668 of the latter, which, compared with the population, is the greatest number of pupils among all the provinces of Lombardy. (Serristori, *Saggio Statistico dell' Italia.*) There is also a house of industry, an asylum for youthful vagrants, instituted in 1815, by a private ecclesiastic, Carlo Botta, for the purpose of reclaiming boys from bad practices and enabling them to earn their bread; several hospitals, dispensaries, &c. It is observed, however, that beggars are more numerous in Bergamo than in almost any town of North Italy.

The foundation of Bergamo, or Bergomum, is attributed by some to the Orobii, who are said to have been a colony of the Etruscans. The Cenomani Gauls invaded the country, and the building, or at least the restoration of Bergomum, is ascribed to them. Bergomum was afterwards made a Roman municipium. On the fall of the western empire, Bergomum was burnt by Alaric. It was afterwards rebuilt by the Longobards, and again destroyed about the year 900 by the Hungarians. In the tenth century Arnulph king of Germany, and afterwards emperor, made it a county, of which he gave the investiture to the bishop. It became one of the towns of the Lombard league against Frederic Barbarossa, and, by the peace of Constance, secured its own independence. It suffered afterwards during the factions of the Guelphs and Guibelines, and in the thirteenth century it became subject to the dominion of a chief called Filippo Torriani, was taken by the Visconti of Milan at the beginning of the fourteenth century, passed successively under the tyranny of several native and foreign chiefs, until at last, in 1427, its citizens gave themselves up voluntarily to the Republic of Venice, to which Bergamo remained firmly attached till the destruction of that republic by Bonaparte in 1797. The country people of the province of Bergamo have a peculiar dialect, in which the Harlequin of the Italian stage is made to express himself. This character is said to have been conceived as an imitation, or rather caricature, of the manners and language of the people of the Val Brembana, or valley of the river Brembo, in the same manner as the Pantaloon was the representative of the people of Venice, Policinella of those of Acerra and Campania in general, &c.

BERGAMOT, the fragrant fruit of a species of Citrus.

BERGAMOT, ESSENCE OF, an essential oil, obtained both by pressure and distillation from the rind of the bergamot, the ripe fruit of the *citrus bergamium*: it is limpid, yellowish, and fluid; that procured by pressure is not so fluid as that yielded by distillation, but its odour is more agreeable.

The specific gravity of essence of bergamot is 0·888, its smell resembles that of oranges, and it is used as perfume; at a little below 32° Fahr. it becomes solid.

Vauquelin made a set of experiments to discover the effects that were produced by the mixture of alcohol and this oil, in order that the fraud which is commonly practised of mixing them might be detected. He found that 100 measures of alcohol dissolved 50 measures of oil, but that there were several anomalies in the proportions in which smaller quantities of alcohol dissolved the oil. The general results are: 1. That the oil of bergamot may contain eight per cent. of alcohol, of the specific gravity 0·817, without its being perceptible when mixed with water. 2. That when it contains a greater quantity of it, the surplus separates, dissolving about one-third of its volume of oil. 3. That a small quantity of water mixed with the alcohol diminishes remarkably its action upon the oil; since alcohol of specific gravity 0·880 dissolves only 1-28th of its volume, while pure alcohol dissolves almost half its volume. 4. That when we mix alcohol with a volatile oil, a mutual exchange takes place between the two fluids, the relation of which must vary with the purity of the alcohol; this last dissolves the oil, whilst the oil absorbs the alcohol. 5. That when we mix alcohol of specific gravity 0·847, for example, with oil of bergamot, which is 0·856, the alcohol sinks to the bottom, and the oil swims upon it: this depends upon the oil absorbing a part of the pure alcohol, and thus rendering the remainder more dense, while it becomes itself more light. 6. That there takes place a kind of decomposition of the water and alcohol by the oil; from which it may be suspected that, if we were to mix a small quantity of diluted alcohol with a large quantity of volatile oil, the water would be separated, and be precipitated alone to the lower part of the vessel. Hence we learn that the dealers in perfumes may introduce eight per cent. of alcohol into them without our being able to detect the fraud by the ordinary means; but it may be discovered by the assistance of the spirit hydrometer, as the density will be diminished by about 1-100th part. Sulphuric æther does not act on the oil of bergamot like alcohol; it unites with it in all proportions, and the fluids do not afterwards separate.

BERGEN, in the kingdom of Norway, and the province of Sóndre Bergenhuus, is situated in 62° 23′ 24″ N. lat., and 5° 20′ E. long. from Greenwich. At an early period, attracted by the prolific fisheries on the coast, and particularly by the herring-fishery, a number of fishermen were induced to settle round a gulf of the North Sea, on a part of which the town is now built. Its convenient situation for trade induced one of the antient kings of Norway, Olaf Kyrre, to enlarge the place, and to build a regular town there in 1069 or 1070.

The island, called Askóen, situated about three English miles from the town, forms a bulwark against the sea, and encloses the large bay Byefjórden, which forming two branches, called Vaagen and Puddefjórden, encircles the town. The town is built on a promontory, and extends round that part of the bay called Vaagen, which constitutes the real harbour. On the east side of the town are two lakes, Lille and Store

Lungegaards Vandet, communicating with the Puddefjórd, so that the town is almost entirely surrounded by water, and only joins the mainland on the north-east side. The town is enclosed by high mountains, the highest of which (Atriken) is 2072 Rhinelandish (or about 2600 English) feet above the level of the sea.

The armorial bearings of the town represent an antique castle, beneath which are seven balls, probably in allusion to the seven surrounding mountains.

Many commercial privileges were granted, and various useful institutions established in the town during the reign of Olaf Kyrre; he likewise adorned it with several magnificent buildings, among which was Christ Church, which is described as having been a beautiful specimen of architecture, and was, moreover, the first Christian temple erected in Bergen. It was pulled down in 1531. The palace (Kongsgaarden) was also built in his reign, and was situated on the spot on which the fortress now stands: this fort, which has been several times destroyed by fire, was remodelled, and made a regular fortress in 1646.

Olaf Kyrre being on friendly terms with England and Scotland, favoured these nations with many commercial privileges, and they were the first foreigners who settled in Bergen.

During the twelfth and thirteenth centuries, for a period of about 130 years, Bergen was a sort of residence for the antient kings of Norway, a circumstance which greatly contributed to its prosperity. Trade was carried on partly with Nordlandine, partly with the islands of Færóe, the Orkneys, Iceland, and Greenland. In the year 1278, the German merchants of the Hanse Towns obtained permission to settle in and trade with Bergen, by whom the English and Scotch were gradually displaced, and at last entirely expelled in the year 1312. As the policy of this body was to monopolize the trade of Europe, they used every means to establish themselves in a place so advantageously situated for trade as Bergen, which was at that time the central point for the whole trade of Norway, and offered in particular the best opportunity for carrying on the fish trade. In attaining this end, they availed themselves of the weakness of the kings during political disturbances, and of the ignorance of the inhabitants, in those early times, as to matters of trade. Their privileges were confirmed and extended, in 1343, by King Magnus Smack. From this date they acquired a complete ascendency in the town, supplanted the inhabitants in every branch of commerce (even that with Nordlandene, although this was positively interdicted them), and usurped an almost despotic dominion over the townsmen for more than one century and a half.

About the year 1435 the Hanseatics formed a fixed trading establishment in Bergen, called the Hanseatic *Contoir*, whose clerks, servants, &c. were under the immediate superintendence of the Hanse Towns, acted by their directions, frequently, in their insolence, set the laws and authorities of the country at defiance, caused the citizens every kind of molestation, and even carried things so far as to fortify their own quarter of the town, which, as it occupied the whole quay, gave them the complete command of the harbour. As an instance of their violence, may be mentioned the murder of the governor, Olaf Neilsen, and Bishop Torleif, on the 1st of September, 1455, who had incurred their displeasure, and were cruelly put to death, together with sixty other persons who had taken refuge in a convent, which was burnt at the same time. To prevent their forming alliances with the inhabitants, they were prevented by their statutes from marrying, the consequence of which was, that a licentiousness became prevalent in the town that exceeded all bounds. In their insolent conduct towards the citizens they were joined by a great number of foreign mechanics, who had likewise established themselves in a separate quarter of the town, where they also exercised unlimited dominion. The oppressed citizens frequently presented their complaints to the government, but their wrongs were not redressed until Frederick II. of Denmark, on the 25th of July, 1560, issued an Act, called Odense Recess, which placed more definite limits to the privileges of the Hanseatics, and became a law, according to which the quarrels between the Hanseatics and the citizens were decided. This act entirely broke the supremacy of the Hanseatics, which had previously received a severe shock from the vigorous conduct of Walkendorff, who was appointed governor in 1556, and became afterwards celebrated for his disputes with the astronomer, Tycho Brahe. From this period the usurped authority of the Hanseatics was at an end. Other nations, English, French, Spanish, &c. began to trade with Bergen, in which the citizens themselves also partook. Although the Hanseatic confederacy was dissolved in 1630, Hamburgh, Lubec, and Bremen, still continued to possess extensive privileges in Bergen; but as the citizens got possession of the trading houses on the quay, their power and influence gradually declined. In 1763, when the last of these came into the hands of a citizen, the only remnant of the influence of foreigners, which had continued during four centuries, entirely disappeared.

The trade of Bergen may be divided into two branches, the internal and the foreign trade. Of the first, that with the northern provinces of Norway, called Nordlandene, is the most important. These provinces receive from Bergen the greater part both of the necessaries and the luxuries of life; and the latter in much greater quantities than might be imagined, the taste for luxury having of late considerably increased among the inhabitants of Nordlandene. In return, Bergen receives from these provinces large quantities of fish, herrings, roes (*rogn*), fish-oil, tallow, skins, feathers, &c., all which articles are brought by the Nordlandmen themselves in their own vessels to Bergen. They come to Bergen twice a year with their own yachts, the first time from the middle of May to the end of June, which period is denominated the first meeting (förste stevne); the second meeting takes place from the middle of August to the middle of September. At the first of these meetings from forty to fifty yachts arrive, loaded with about 16,000 barrels (tonder) of fish-oil and roes (rogn), and some fish of the summer and autumn fishing of the preceding year. At the last meeting there generally arrive seventy or eighty yachts, with two or three hundred thousand voger of fish (a vog is about 36 lbs.). If one barrel of oil is valued at 12 dollars *, one barrel of roes at 3 dollars, and a vog of fish at 96 skillings, their annual amount may be estimated at 350,000 dollars (about 60,000*l.* sterling). The yachts are differently constructed from other vessels. In respect to their tonnage they are equal to very large vessels; but notwithstanding their long and perilous navigation, they are all open and clinker built. They stow in general from 3000 to 6000 voger of fish, but there are some which can stow 10,000. At the stern they have a high and spacious cabin; the bow is likewise very high, and they have no bowsprit. Between the cabin and the bows the vessels are very wide, but not very high: when they are loading, a number of long poles are placed on both sides, against which boards are laid in an horizontal position. Between this fence the cargo is stowed, which then rises from six to eight yards above the water, although the sides of the vessel are scarce elevated two-thirds of a yard above the surface. In order that the cargo may not break the fence by its weight, the poles are bound with strong ropes. At the top of the cargo thin boards (flager) are laid close together, which form a sort of deck. The tackle is extremely simple, consisting of one very high mast, which is fastened with a few strong ropes, without shrouds; to this is made fast a very large square-sail, which is enlarged or diminished according to the state of the weather and the cargo. All this description of vessels may be distinguished from others by their having two large black squares in the upper corners of the sail, the origin of which is not exactly known. Each yacht has a crew of eight, ten, or twelve, according to her size. Although the navigation is long and dangerous for open and heavy-laden vessels, they are very seldom wrecked or lost: they sail only when they have fair wind along the coast; when it is contrary, they take in sail and come to anchor.

It may perhaps not be uninteresting to give a short account of the fishing in Nordlandene, in which the trade of Bergen originates. This fishing may be divided under two heads, the *winter* and *summer* fishing, the former of which is the more important, and is only carried on for taking the large cod-fish, called in Norwegian *skrei* (*acellus major vulgaris*). This fish is found in immense quantities round the islands of Lofoden (68° 30′ N. lat.): it varies only in number and fatness. The fatness gradually increases or decreases during a period of about seven years: the cause of this is unknown. In the beginning of February the fish arrive in large shoals (*fiskebjerg*, 'mountains of fish'), in layers one over the other, and several yards in thickness. They are found by means of a lead, and the shoals are so dense, that it is with some difficulty that the lead is sunk through them. Sometimes the fish come so near the land, that one end of the net is fastened on shore. The principal fishing-banks are situated from half a mile to one mile and a half (Nordland measure) from the land, in a depth of sixty, seventy, or eighty fathoms. At the end of March, or the beginning of April, the fish leave the banks and return to the ocean: these enormous quantities approach the banks for the purpose of diffusing their spawn, and thus they sacrifice their life in order to propagate the species.

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* Six Norwegian dollars have been estimated as equal to 1*l.* sterling.

To this fishing the peasantry come from the whole of Nordland and Finmarken in their boats and yachts; and many other vessels from Bergen, Trondhjem, and the towns in Nordlandene, in order to buy raw fish, which they afterwards prepare as stockfish, and roes. From Helgeland, and that part of the district of Salten to the south of Foldenfjórd, the fishermen always come to Lofoden in their yachts: those from the northern and nearer districts come only in boats. The proceeding of the former is as follows:—At the end of January they equip themselves for their departure with victuals, fishing-tackle, &c., which, under the denomination of *bornskab*, is divided into two equal parts, one of which is embarked in their boats, and the other in the yacht that accompanies them. This is done partly in order to lighten the boats, and partly that they may not be too much embarrassed should the one or the other be lost. The fishermen divide themselves into what are called (*baadlaug*) boat-guilds, who fish in common, and divide the produce according to certain regulations. A boat-guild consists of two boats, each with ten oars and five men. Every twenty or thirty of these boat-guilds have a yacht in common. During the fishing the yacht remains at the fishery, and is used as a sort of magazine by the fishermen. When the fishing is ended, the livers and roes are salted down in barrels and put on board the yachts. On the return of the yacht to the harbour from which it is freighted, the liver is unloaded, boiled, and converted into oil. It is then reshipped, together with the prepared fish that may chance to have remained from the former year; after which the yacht proceeds to Bergen. This is what is called the first meeting. They generally arrive in Bergen by the end of May or the beginning of June. The yacht on its return enters its harbour, takes on board the empty liver-barrels, fishing implements, &c. required for the winter fishing, and sails to Lofoden, where the dried rund-fish is embarked and carried to Bergen. This is the last meeting; and on returning from this voyage their task is finished for that year. The yacht is paid for this voyage by a share in the produce of the fishing. This is divided for each boat-guild into eleven parts, of which every man receives one; the eleventh part is divided between the owners of the yacht and the proprietors of the boats.

To the complete equipment of a boat-guild belong oars, masts, sails, tackle, and the requisite implements for fishing, either with net or with line. Each guild has six or eight nets, of thirty fathoms in length, thirty meshes in depth, every mesh being, when extended, six inches long, composed of strong double hemp threads. The lines are 1000 fathoms in length, to which are attached 1200 large tinned iron hooks, by strings of a fathom in length. Besides this, every man must be furnished with provisions for two or three months. The expense of each man's equipment from Helgeland is estimated at about 40 dollars (6*l.* 13*s.* 4*d.*). The boat is either the property of the fishermen, or is hired by them for the voyage.

The fishermen from Nordlandene commonly unite themselves in companies of twenty, forty, or sixty boats, and sail along the coast of Helgeland and Salten to the islands called Grotóen and Lovóen. Here they wait for favourable winds to pass the bay Westfjórd, at the spot where it is about forty English miles across. They are sometimes, during the short days, detained here a considerable time, before the weather permits them to hazard the perilous passage. A council is held among the men, and it is decided by a majority of votes whether the passage shall be undertaken or not; but it not unfrequently happens that some daring fellows seduce the others to make an attempt in bad weather, and thus many lives are lost.

When the fishermen arrive at Lofoden, every boat-guild proceeds to the spot (*fiskevær*) where they intend to fish, each having a certain place, not in consequence of any restriction in this respect, but because they require a place for a dwelling-house, and for erecting the frames of wood upon which the fish is hung to dry. The house is built of timber, from twelve to sixteen feet square; in the middle is a stove, consisting of a flat stone on the floor, and a hole in the roof by which the smoke escapes, with a small window giving a feeble light. This cabin is inhabited by a boat-guild—consequently by from ten to twelve persons—who cook, sleep, and repair their nets during the fishing season. The above-mentioned frames, called in Norwegian *hjeld*, consist of wooden crosses fixed in the earth, which support poles laid horizontally, upon which the fish, tied by the tail in pairs, are hung to dry. This scaffold must be so high as to prevent the fish from being taken by the fox, or damaged by high water.

The fishing is regulated according to certain rules contained in several antient laws, and of late by that of the 4th August, 1827. These laws prescribe the order to be observed in the fisheries, the time for placing and removing the nets, the preparing, salting, and drying of the fish. Several persons, chosen from among the fishermen themselves, are appointed to superintend the observance of them. The fish are for the most part caught in nets, which are placed in the evening, and removed in the morning, after a signal given by these superintendents. There is, however, a difference of opinion whether the use of the net or the line is the most advantageous.

The fish are prepared in two different ways—for rund-fish, or as it is commonly called, stock-fish, and also for klip-fish. The *rund-fish* is prepared by opening the belly, taking out the liver and roe, and cutting off the head; after which operation the fish are hung in pairs upon the drying scaffold, and exposed to the wind and weather. The livers are collected in barrels, and the roes are partly salted, and partly used as bait. The heads are dried, taken care of, and brought home to serve as food for cows. The *klip-fish* is cut along the back, and the back-bone taken out, after which it is salted down in the bottom of the vessel: three and a half to four barrels of salt, mostly French, or half French and half Spanish, are required for every 1000 fish. A vessel commonly stows 20,000 salted fish, and, being loaded, departs for the coast of Helgeland, or the northern part of the diocese of Trondhjem, where the principal operation is performed in the following manner:—The fish is landed at a place where there are large flat mountains with a southern aspect, upon which it is spread, and exposed to the sun. In rainy weather it is collected in large heaps, and covered with heavy stones to prevent its being damaged. During this operation, which is frequently repeated according to the weather, the fish undergoes a fermentation, which gives it a good flavour. In fine seasons this preparation is completed in three or four weeks. Klip-fish, on account of the humidity of the climate, is seldom prepared at Lofoden. In bad seasons, when there are continual rains during the preparation, great quantities are spoiled. One hundred fish, wages and freight included, cost five dollars, and produce from sixteen to eighteen voger of klip-fish.[*] Under the process the fish becomes much lighter in weight; so that two cargoes of salt-fish give one cargo of klip-fish. If circumstances are favourable, this trade gives a considerable profit, and indeed it ought to do so, as it is attended with considerable risk. The klip-fish is not prepared by the fishermen themselves, but either by the merchants settled at Lofoden and in the neighbourhood, or for the most part by merchants from Trondhjem, Christiansand, Molde, Bergen, &c., who send their vessels to Lofoden with provisions, brandy, salt, and other articles to be used in barter; partly with these articles, and partly with money, they purchase the raw fish. It being more lucrative to prepare rund-fish than to sell the raw fish for making klip-fish, the fishers seldom do the latter, unless they are distressed for victuals, money, or brandy. One hundred or one hundred and twenty raw fish commonly sell for one dollar or less, but when prepared as rund-fish, they produce at least from four to five voger, which, at the rate of half a dollar per vog, give from two to two and a half dollars.

The liver is brought home by the fishermen themselves, and their first task after their return is to prepare oil from it: two barrels or two barrels and a half of liver, being the produce of from two to five hundred fish, according to their fatness, give one barrel of oil, which is preserved in oaken casks, and bought in Bergen.

The roes are salted in quantities proportioned to the prospect of sale, and are principally exported to France, where they are used as bait in the sardel (sardine) fishing.

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[*] A vog of klip-fish, the largest being selected, averages from five to six fish A vog of rund-fish contains from twenty-five to thirty fish.

When the fishing season at Lofoden is over, the place becomes as desolate as it was before animated; but when the fish is to be taken down it becomes lively again. This period, as appointed by law, commences on the 12th of June, previous to which it is prohibited under penalty of fines to remove the fish.

In order to give an idea of the immense quantity of fish taken here, the number of hands employed, and the amount of capital invested in this the most important fishery of Norway, in the districts of Lofoden and Westeraalen only, we need but mention that during the winter fishing in 1827 the number of boats was 2916, and of yachts 124, manned with 15,324 men: 16,456,000 fish were taken, which gave 43,060 barrels of liver. If the fish is valued at one half dollar per vog (containing about thirty fish), the liver at seven dollars the barrel, and 6000 barrels of salted roes at one dollar the barrel, the whole will amount to 430,987 dollars, about 72,000*l*, which is the value of the produce of the fishing at Lofoden during a period of eight weeks.* Taking into account the value of the yachts, boats, and fishing utensils, together with the yearly expenses for their repair, as well as the support of the fishermen during the season, we have, on a moderate calculation, a capital of about 919,000 dollars, which must be considered very great when we reflect that it is furnished by simple peasants. The fishery of 1825 has been more productive than that of five or six preceding years.

Although the fishing at Lofoden is productive, the net income of each individual is not very considerable, partly in consequence of the number of fishermen, and partly owing to the damage which the expensive utensils suffer from storms and other contingencies.

The income of each man from a fishing trip is estimated at 40 voger of rund-fish, 3 barrels of oil, and 500 raw fish, being altogether worth about 48 dollars in money: after deducting the expenses, which are reckoned at 27 dollars, he has a net profit of 21 dollars remaining (3*l.* 10*s.*). It may be remarked, that the produce of the fishing depends much on good boats and utensils, as well as on experienced and orderly fishermen. As they are generally obliged to bring their fish to Bergen or Trondhjem, they may chance to lose the whole, or to have the greater part of it damaged by bad weather.

It may appear extraordinary that the Nordlandman should bring his produce to so distant a market as Bergen (about 500 English miles), while he has other towns much nearer, as for instance Trondhjem, Christiansand, and Molde. His object, however, is not only to obtain a sale for his produce, but also a market where there is sufficient competition among the buyers to prevent a depression in prices, and where he can, at the cheapest rate, be provided with the articles which he requires. Such a market he finds in Bergen, whose credit as the principal place for the exportation of fish is so well established abroad, that he is always sure of a quick sale for his commodities, and is likewise, by the confluence of merchandise of every description, enabled to obtain what he may require, at the lowest prices. In exchange for their fish, the Nordlandmen purchase, in Bergen, corn, meal, oaken barrels, coffee, sugar, and different articles of necessity or luxury.

Every Nordlandman who brings his produce to Bergen has generally a certain merchant there who buys it of him, and supplies him in return with such articles as he may require, or with ready money. Most commonly the merchant remains his creditor, and has then a claim on the produce of the following year's fishing. Thus the Nordlandmen are continually in debt to the merchants of Bergen, though not so much now as formerly. In 1763, for instance, the total amount of their debt was estimated at 50,000*l.* That the facility of obtaining credit should incline the men to luxuries, equally dangerous to their morals and unfavourable to economy, is a very natural consequence. A singular custom prevails in Bergen of the merchants, in an assembly, fixing the prices of the fish for each year, in order to prevent them from rising too high by competition; but as no one is compelled strictly to adhere to those prices, it has happened that they have risen more than 100 per cent. above the price agreed on. The great competition always prevents the prices from falling too low.

Formerly, and especially during the Hanseatic establishment, the Nordlandmen were frequently exposed to fraud from the merchants of Bergen; but at present this is not considered to be the case, and the circumstance that the people continue to visit Bergen instead of their nearer neighbours, seems to confirm this supposition.

The annual arrival of the yachts from Nordland occasions extraordinary life in the port and on the quays; the harbour is almost blocked up with vessels: frequently the whole night is employed in transporting, packing, and preparing goods, so that this season may be considered as a continual fair.

The trade of Bergen with the other parts of Norway is by no means so important as that with Nordland. From the interior of the country Bergen receives iron-manufactures, glass, tiles, &c.; from the towns in the diocese of Trondhjem, some copper, with millstones and grindstones.

Of foreign trade that with the Baltic is very considerable. Bergen exports thither large quantities of herrings and other fish, and skins; receiving in return hemp, glue, hops, canvas, linen, &c. The trade with Denmark is extensive, but is for the most part carried on in Danish vessels, which bring corn, pork, and other provisions. From Hamburgh, Bergen is inundated with merceries, cloth, cotton goods, and colonial articles of every description, which far exceed the value of Norwegian produce exported to Hamburgh. The trade with Holland is not inconsiderable: the Dutch import dyes, drugs, linseed-oil, cheese, paper, and files, the value of which greatly exceeds the amount of the articles which they take in return, among which, the moss used for dyeing has of late years become one of the most important. With England the trade is less considerable than formerly: coals, cloth, and manufactured goods are received in exchange for fish, lobsters, tallow, and skins. Sweden supplies Bergen in her own vessels with iron, nails, vitriol, alum, and staves, taking in return fish, particularly what is called the spring-herring. From France, Bergen imports large quantities of salt, wines, brandy, colonial articles, &c., and sends thither large quantities of fish, oils, salted roes for the sardine fishing, and planks: this trade is carried on chiefly in native vessels. Bergen has considerable trade in the Mediterranean: the imports consist of salt, sweet-oil, wines, and fruits; the exports of large quantities of dry-fish and klip-fish, of which there is a very considerable consumption in the Catholic countries during the fasts.

Bergen has scarcely any commerce at all with places out of Europe, except that from time to time a vessel sails to the West Indies.

In the year 1829 Bergen's export of fish, lobsters, &c., was as follows: —

Dry and smoked fish 68,905 skibpunds (a skibpund is about 320 lbs. English).

Klip-fish . . .	23,269	skibpunds
Salt-fish & herrings	188,278	barrels
Salted roes . . .	13,928	„
Train-oil . . .	16,818	„
Lobsters	250,582	pieces.

In 1828, the exports of these goods amounted to about 20 per cent. more.

The most considerable article of import is corn, of which there was imported, in 1829, 176,137 barrels, besides 4750 barrels of peas: in 1828, 181,753 barrels of corn, and 2547 barrels of peas were imported. The other articles imported in 1828 were 126,781 barrels of salt, 354,000 lbs. sugar, 145,000 lbs. coffee, 4172 lbs. tea, 245,000 lbs. tobacco, 938,000 quarts wine, 2,939,000 staves for barrels, and 1,656,000 hoops, to which must be added a large quantity of manufactured goods.

In 1829 Bergen possessed 205 vessels, with a tonnage of 5475 Commerce Lasts, and about 700 seamen.

In the same year, 622 vessels, with a tonnage of 22,249 Commerce Lasts, were cleared inwards at the custom-house, of which 237 were Norwegian, with 7756 Commerce Lasts; the remainder were foreign vessels. About the same number, and in the same proportion, cleared outwards.

Bergen has been several times visited by great calamities: in the years 1348 and 1350 the black pestilence, which was brought thither by an English vessel, carried off the greater part of the population. At other different dates, in the years 1618, 1629, and 1637, the plague destroyed about 3000 of the inhabitants each time. It has also frequently suffered by fire, of which the most destructive was the one that happened on the 19th of May, 1702, whereby nearly the whole town was reduced to ashes.

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* There is evidently an error here in the calculation: the error lies in the price of a barrel of livers. We are informed by a gentleman who has been in the trade that a barrel of livers is worth two dollars or less. But even at this price the calculation will not agree with that of our Norwegian correspondent.

At present there are about 2500 dwelling-houses in the town; the population was, in the year 1825, calculated to amount to about 20,000.

The town is the residence of the high sheriff (*stiftsamtmand*) and the bishop of the diocese. Here is likewise the seat of a tribunal of second instance (*stifts over ret*). There are five churches in the town, of which the cathedral is the most considerable. It has likewise one Latin school, one burgher school, and sundry others for the poorer classes: one of the latter has adopted the Lancasterian method. It possesses likewise five public libraries, one drawing school, one national museum, three hospitals, six establishments for the poor, one house of correction, and another prison for greater criminals.

Here is also one of the three public treasuries of the kingdom, a division of the national bank with three directors, and a savings' bank.

Bergen possesses several tobacco manufactories, seventeen distilleries, and three rope-yards; but other manufactories that formerly existed have been abandoned.

The harbour is good and commodious, but the entrance, Bergen's Leed, which is about 108 English miles in length, is inconvenient, especially in the winter. The entrance is divided into two branches, of which that through Karmsund is the most frequented. The vessels in the harbour suffer from worms.

To the fortifications of the town belong the before-mentioned fortress of Bergenhuus, with about thirty guns, but it is considered of no great military importance; two forts, called Sverresborg and Fredriksberg, and several batteries, mounting altogether 103 guns. The garrison consists of about 300 men; the chief of the brigade of Bergenhuus is the governor. A squadron of the navy is stationed here.

The annual taxes paid by the town to the public treasury amount to 21,000 dollars, but the communal expenses are almost double that sum.

The situation, viewed from the sea, is strikingly picturesque; the town extends itself in the form of an amphitheatre round the harbour, which is constantly animated with boats and vessels.

Since the last fires, some care has been taken in embellishing the town and enlarging the streets; the market-place is a handsome square, planted with trees, and surrounded with fine buildings.

Bergen, being the most considerable commercial town in Norway, is consequently the richest. Several mercantile houses are supposed to have large fortunes. The inhabitants are in general laborious and industrious, their attention being particularly directed to their trading pursuits. Bergen has nevertheless produced several artists and men of learning; among whom may be mentioned Ludvig Holberg, born in 1684, died in Denmark in 1754, celebrated for his satirical plays and historical works: and the landscape painter Dahl, at present professor in Dresden, born 1788.

The climate is in general humid and rainy, but not unwholesome; the winter is seldom so severe as to freeze the harbour. Much attention is paid to orchards in Bergen and the surrounding districts, and there is a greater abundance of fruit here than in any other part of Norway. (*Communication from Norway.*)

BERGENHUUS, THE DIOCESE OF, comprehends the western part of Norway: it contains 730 German geographical square miles, or about 15,600 English square miles, comprising the mainland and islands along the coast, of which some are inhabited, others not, with a population of about 200,000. It is bounded on the north by Trondhjem, on the east by Christiania, on the south by Christiansand, and on the west by the ocean. The mainland is almost everywhere intersected by deep gulfs, confined between high mountains, on which there is in general little wood, but good pasturage. The habitations are situated in the valleys between the mountains, or on their sides, and sometimes near their summits. Along the gulfs and valleys there is, in many places, flat ground and good corn-fields. In general, agriculture is very backward, and although some progress has been made in recent times by the peasants adopting a better system, yet there is only one parish, Hafsloe, which is not annually necessitated to buy corn. Copper and iron ores are found in many places, but their situation and the want of wood prevent, in some measure, their being made use of. Marble is found in several places. The principal branches of industry are, fishing on the coast, especially that of herrings; and breeding cattle on the banks of the gulfs. The largest gulfs are Hardangerfjórd, or Bommelfjórd, 18 geographical miles, or 83 English miles, in length, Korsfjórd and Gjeltefjórd, the entrance to the city of Bergen, and Sognefjórd, 16 miles in length. The principal river, called Leerdals Elv, has its source in the mountains of Fille Fjeld, and empties itself into a branch of the Sognefjórd. The diocese comprehends the following provinces (in Norwegian called Amt): Sóndre (Southern) Bergenhuus, Nordre (Northern) Bergenhuus, and a part of the province of Romsdal called Sóndmoer. As to the civil administration, it is divided into five districts (Fogderier) containing 165 parishes. The only barony in Norway, Rosendahl, is situated in this diocese. There is no other city than Bergen. (*Communication from Norway.*)

BERGEN-OP-ZOOM, a town and strong fortress in North or Dutch Brabant, on the little river Zoom, and near the right bank of the eastern branch of the Schelde. It is situated partly on a rising ground, and surrounded in great measure by marshes and sands, which are overflowed at high-water, and add to the strength of its defences. It formed once part of the barony of Breda, but was created into a separate marquisate by Charles V. It was one of the strong holds of the states-general of the united provinces, in their war against the Spaniards. The Prince of Parma besieged it in vain in 1588, and the Marquis of Spinola likewise failed before it in 1622, after sustaining great loss. Afterwards, the famous engineer Coehorn increased its fortifications, and it acquired the reputation of an impregnable fortress. However, in 1747, the French, commanded by the Count of Löwendal, took it by storm, and a horrible massacre ensued, in which 3000 of the garrison and many of the citizens were butchered. It was restored to Holland at the peace. When the French republicans, under General Pichegru, invaded Holland in 1795, Bergen-op-Zoom surrendered to them. The English general, Sir Thomas Graham, attempted to carry it by surprise in the night of the 8th March, 1814, but was repulsed with great loss. It was restored to Holland by the treaty of peace in the following May.

The town is well built, and has a fine market place and other squares. Its population is about 6000, who chiefly gain their subsistence from the garrison, and formerly at least, from a small transit trade in tiles and pottery between Holland and Antwerp. Besides the fortifications round the town, there are several outer forts connected with it, such as forts Mooermont, Pinsen, Roowers, &c. It is seventeen miles N. by W. of Antwerp, and twenty-one miles W. by of Breda. (Balbi and Roquette, *Essai Géographique et Statistique du Royaume des Pays-Bas*; Kampen, *Beschrijving*, &c.)

BERGERAC, a town in France, in the department of Dordogne, and on the river which gives name to the department. It is 322 miles S.S.W. of Paris: 44° 51′ north lat., 0° 28′ E. long. from Greenwich.

The situation of this town, at one of the most convenient passages over the Dordogne, rendered it in the middle ages a military post of some consequence. It was fortified in the 14th century by the English, but was taken from them in 1371 by Louis, duke of Anjou, brother of Charles V., king of France. In the religious wars of the 16th century, the inhabitants of Bergerac embraced the party of the Calvinists; and Jean de Barri, Sieur de la Renaudie, one of the natives of this town, engaged in the celebrated conspiracy of Amboise, and was indeed the leader of that disastrous undertaking, in which he fell. Bergerac was afterwards taken and retaken several times. Louis XIII., having rendered himself master of it in 1621, demolished the fortifications, which have never been restored. Notwithstanding these disasters the town and neighbourhood continued to be so populous, and the reformed party so strong, that when the edict of Nantes was revoked, it is said there were forty thousand Calvinists within a circuit of six leagues (16 or 17 miles) round Bergerac.

The town is situated in a fertile plain, which produces wine, chestnuts, grain, hemp, and wood, and pasturage for cattle. The manufactures of the town are chiefly of iron goods (the iron being forged in the neighbourhood), cannon and small arms, copper utensils, earthenware, paper, leather, hosiery, and hats. The paper mills are some distance out of the town. The agricultural produce of the neighbourhood furnishes also articles of commerce: the wine of the district was some years ago exported partly to

Holland. The Dordogne being navigable enables the inhabitants to keep up constant communication with the towns of Libourne and Bordeaux. Population in 1832, 5966 for the town, or 8557 for the whole commune. Bergerac is the seat of a sub-prefect, and has a *tribunal de première instance*, or subordinate court of justice, and a *tribunal de commerce*, or court of reference for mercantile disputes.

The arrondissement of Bergerac comprehends 926 square miles, or 592,640 acres, and had in 1832 a population of 116,897. It is subdivided into thirteen cantons and into 167 communes.

This town was the birthplace of the Maréchal de Biron, an eminent soldier in the war of the league, and one of the chief supporters of Henry IV.; also of his son the Duc de Biron, who was beheaded for treason in the reign of that prince. (*Dictionnaire Universel de la France;* Malte-Brun.)

BERGHEM or **BERCHEM, NICHOLAS**, whose family name was Van Haerlem, was born at Haerlem in 1624. He received his first instructions from his father, a painter of still life, of no remarkable talent. Afterwards he became the pupil successively of Van Goyen, Mojaart, Jan Wils, and Weeninx. During his early practice he frequently painted sea-ports and shipping, and his works of that period bear a strong resemblance to those of the last mentioned master; but subsequently he devoted himself almost exclusively to landscape. The works of Berchem have not the high ideal character which distinguishes those of Claude and Gaspar Poussin: they evince, however, great liveliness of fancy, a judicious taste in selection, and a mastery in pencilling which has not often been equalled. His landscapes are usually enriched with architectural ruins and picturesque groups of figures and cattle; and these compositions, although evidently made up of materials selected at different times and from various sources, are so happily arranged and have such an air of truth, that it is difficult to believe that they were not copied directly from nature. Berchem had an executive power which never missed its aim; his touch is equally free and discriminating, whether expressing the breadth and richness of masses of foliage, the lightness and buoyancy of clouds, the solidity of rocks and buildings, or the transparency of water; and his distances are graduated, both in relation to lines and tints, with admirable truth of perspective. In his style of colouring he aimed rather at a subdued harmony than at sparkling vivacity; and he frequently gave great grandeur to his effects by broad masses of shadow, whose negative quality he perfectly understood and expressed. He painted with extraordinary dispatch, but his works betray no traces of negligence; his finishing stops at the exact point which unites accuracy with freedom.

While Berghem's reputation was at its height he was commissioned by the burgomaster of Dort, Vanderhulk, to paint a picture in competition with his distinguished contemporary, Jan Both. The price stipulated for each picture was 800 guilders, and a considerable sum, in addition, was to be awarded to the successful competitor. Berghem painted a magnificent range of mountain scenery, with appropriate figures and numerous cattle. Jan Both selected an Italian landscape, filled with classical imagery, and glowing with the brilliancy of atmosphere peculiar to that country. The pictures were finished and placed in juxtaposition, and the burgomaster, having attentively examined them, declared that he found both performances so admirable, and their respective merits so equal, that it was impossible to decide between them. He then generously presented each artist with a sum equal to that which had been promised as a premium for the superior performance. Berghem was indefatigable in the practice of his art, usually painting, even during the summer months, from sunrise till sunset; yet such was his reputation that he found it difficult, even by this unwearied diligence, to satisfy the demand for his pictures. Descamps, in his lives of the Flemish painters, gives a long list of Berghem's pictures; there is a prodigious number of them in Holland, and they are frequent in English collections. Some fine specimens are in his Majesty's collection and at Dulwich College. Many of his works have been finely engraved by Visscher.

Berghem's own etchings and drawings were exceedingly beautiful and are eagerly sought after. A descriptive catalogue of them was published by Henry de Winter at Amsterdam in 1767. The following is a list of the principal etchings:—Six plates of cows, in the title print, a milkmaid, marked Berghem, fecit; six of sheep, in the title print, a woman on a stone: six goats, in the title print, a man sitting with a dog; eight of sheep and goats, in the title print, a man; five larger plates, upright, one dated 1652, all marked Berghem, fec.; four smaller plates of different animals, lengthways, marked N. B.; six of the heads of sheep, goats, &c., scarce.

Single prints etched by Berghem:—A cow drinking, Berghem, fec., 1680; a cow watering, Berghem, inv. et fec., fine and scarce; a landscape, with two cows lying and one standing by, Berghem, fec.; a landscape, with cows, &c., men riding on an ass, N. Berghem, fec.; a landscape, with a woman bathing her feet in a brook, and a man behind leaning on a stick, with animals and figures, a ruin in the distance; a boy riding on an ass, speaking to another boy who is playing on the bagpipes, called the bagpiper; landscape, a man playing the flute, and a woman sitting; landscape, a man standing and a woman suckling an infant, very fine and scarce.

Berghem made a large collection of prints and drawings, chiefly by the Italian masters, which, after his death, was sold for a considerable sum. He died in 1683, aged fifty-nine. (Descamps; Bryan.)

BERGMAN, TORBERN OLOF, a distinguished chemist, was born on the 9th of March, 1735, at Catherinberg in West Gothland, of which district his father, Berthold Bergman, was receiver of the revenues. After acquiring at school some knowledge of languages, botany, and natural philosophy, he was sent at seventeen years of age to the university of Upsala, and was intended by his father for the church or the bar. He soon, however, manifested his dislike for both these professions, and after some opposition he was permitted to pursue the studies for which he had a decided preference, and he eventually devoted his time to mathematics, physics, and natural history.

He paid very considerable attention to botany, and especially to grasses and mosses; he studied entomology with success, and having collected several insects previously unknown in Sweden, and some even quite new, he sent specimens of them to Linnæus at Upsala, who was much gratified with the present. The first paper which he wrote, and which was printed in the Memoirs of the academy of Stockholm for 1756, contained a discovery of considerable importance, inasmuch as Linnæus, who did not at first credit the accuracy of his statements, afterwards mentioned them in the most flattering terms. In some ponds not far from Upsala a substance was observed, to which the name of *coccus aquaticus* was given, but its nature was unknown; Linnæus conjectured that it might be the *ovarium* of some insect. Bergman ascertained that it was the *ovum* of a species of leech, and that it contained from ten to twelve young animals.

Although mathematics and natural history occupied the greater part of his time, he continued to prosecute the study of natural history as an amusement. In 1758 he took his master's degree, taking *astronomical interpolation* for the subject of his thesis; and soon after he was appointed *magister docens* in the university of Upsala, and while in this situation he wrote several ingenious papers, for example, on the aurora borealis, the rainbow, twilight, &c. In 1761 he was appointed *adjunct* in mathematics and physics, and his name is among the astronomers who observed the first transit of Venus over the sun in 1761, whose results deserve the greatest confidence. he also made some important observations on the electricity of the tourmaline.

In 1767 Wallerius resigned the professorship of chemistry in the university of Upsala, and strenuously exerted himself to place a pupil or relation of his own in the chair which he had quitted. Although it does not appear to have been previously known that Bergman had much attended to chemical science, yet he immediately offered himself as a candidate, and to prove his fitness for the place, he published two dissertations on the manufacture of alum; and notwithstanding the opposition of the ex-professor, Bergman succeeded him.

After his appointment he was assiduously occupied with the duties of his office, and he frequently published dissertations on important branches of chemistry. In 1771 Bergman married a widow lady, Margaretta Catharina Trast, daughter of a clergyman in the neighbourhood of Upsala. He had two sons by her, both of whom died when infants; this lady survived her husband, and on condition of giving up the library and apparatus which he had possessed to the Royal Society of Upsala, she received an annuity of 200 rix-dollars from the king of Sweden. In 1776 Frederick of Prussia endeavoured to prevail upon him to become a member of the Berlin Academy of Sciences and to settle at Berlin. The offer was highly advantageous, but though his health had suffered from close application and it seemed probable that the milder climate of Prussia might restore it, the king of Sweden, who had been his benefactor, was unwilling to part with him; on this occasion he was knighted and received a pension of 150 rix-dollars.

The health of Bergman appears always to have been delicate, and it was permanently injured by his intense application to study when he first went to Upsala; in summer he occasionally repaired to the waters of Medevi, a mineral spring which is celebrated in Sweden, and there, on the 8th of July, 1784, he died.

It is impossible to give an account of all the writings of Bergman, for they amount to 106: they have been collected into six octavo volumes, entitled *Opuscula Torberni Bergman Physica et Chemica*, excepting a few of the less important.

The first chemical memoir which he published was 'On the Aërial Acid,' and printed in 1774; he shows that this gaseous body, now called carbonic acid, possesses acid properties, and is capable of combining with bases and forming salts with them. It is to be observed that he makes no mention of the previous labours of Dr. Black on this subject. In 1778 appeared his paper 'On the Analysis of Mineral Waters.' In this memoir he adverts to many circumstances connected with their general character and sources, and points out the principal re-agents and precipitants used in their examination; the results of his analysis were not accurate, but they were better than those which had previously appeared. His paper on alum has already been mentioned, and although he was well acquainted with the process of manufacturing it in Sweden, he was unacquainted with the true nature of the salt. In his dissertation on emetic tartar he gives a full historical detail of the modes of preparing it, and its uses; but being unacquainted with the nature of the different oxides of antimony, his ideas as to the antimonial preparations best fitted to form it are not accurate. His memoir on the forms of crystals contains the germ of the theory of crystallization afterwards developed by Haüy; he made a considerable number of experiments on silver, and his analyses of the precious stones, though far from accurate, were among the first attempts to ascertain the composition of these bodies.

In 1775 Bergman published his important 'Essay on Elective Attractions;' it was improved and augmented in the third volume of his *Opuscula*, published 1783, and was translated into English by Dr. Beddoes. In this treatise Bergman considers every substance as possessed of a peculiar attractive force for every other substance with which it unites, a force capable of being represented numerically: he also considered decomposition as complete: that is, whenever a third body *c*, is added to a compound *a b*, for one of the constituents of which it has a stronger attraction than that which exists between the two, the compound body will be decomposed, and the whole of one of its elements transferred to the body added. Thus, suppose the attraction of *a* for *b* to be represented by 1, and of *a* for *c* by 2, then the addition of *c* to *a b* will produce the compound *a c*, and *b* will be separated: thus, when lime-water is added to muriate of magnesia, the magnesia is precipitated and a solution of muriate of lime is obtained; and hence when muriatic acid is poured upon a mixture of lime and magnesia, it dissolves the lime and leaves the magnesia. From these and numerous similar facts Bergman called this kind of attraction or affinity *elective*. This work contains a vast number of experiments: and though the accuracy of his researches and opinions have been called in question, and in many cases upon good ground, the work will long remain a monument of his sagacity and industry.

BERGUES, a town in France in the Department of Nord, 182 miles N. of Paris, through Peronne, Cambray, and Lille; or 160 through Amiens, St. Pol, and Hazebrouck. It is about five miles S.E. of Dunkerque: 50° 58′ N. lat., 2° 24′ E. long. from Greenwich.

This town is sometimes called *Bergues*, or *Berg St. Winox*, and is said to have risen gradually round a rich and celebrated Benedictine abbey, founded at the foot of a hill called Groenberg or the Green Mountain, and which existed up to the Revolution. The older topographers speak of Bergues as ill built, with irregular streets and three miserable *places* or squares; but M. Malte-Brun says its houses are all built of brick and are regular. It is surrounded by an old wall, with round towers placed at intervals, and has been further strengthened by several works constructed by Vauban, so that it still holds rank among fortified places; and in the year 1793 was besieged in vain by the joint forces of the English, Hessians, and others. When the siege was raised in consequence of the defeat of the allies at Hondtschoote, the besiegers left above fifty pieces of cannon behind them. The principal church is that of the former abbey of St. Winox, which abbey formed, as mentioned above, the nucleus of the town. The present church is, however, a modern edifice, for the old church having been ruined in the previous wars was rebuilt during the last century. Before the Revolution there were two parish churches, that of St. Winox being one of them. The Jesuits had a college here, one of the handsomest in French Flanders. There is a high school at the present time. The little river Colme passes through one quarter of the town, which is traversed by many canals. There are communications by canals with Furnes in Belgium, and from thence with many other Belgic towns; with the canal of the Aa, and by that with St. Omer on one hand, and Gravelines on the other: and with the sea at Dunkerque. This last mentioned canal is capable of receiving vessels of 300 tons burden.

The manufactures of the town are of cloth, linen, calico, and soap; and it serves to supply the population of the neighbouring towns with all the necessaries of life, butchers' meat, corn, butter, cheese, beer, wine, spices, sugar, leather, &c. Its corn market is very considerable. The population in 1832 was 5962.

The neighbourhood was formerly very marshy. There were two considerable marshes called *Möeres* (meres); and the low situation of the town, however it might increase its strength as a fortress, by affording the power of inundating part of the environs, by no means contributed to the health of the inhabitants. By proper draining of the marshes the district has now been rendered more salubrious, and fertile fields and comfortable dwellings have been substituted for a watery waste.

So important has Bergues been regarded as a military station, and so fiercely has the possession of it been contested, than in ten centuries it was eight times taken and retaken, seven times plundered, and three times besieged in vain. (Malte-Brun; Expilly, *Dictionnaire des Gaules, &c.*; *Dictionnaire Universel de la France.*)

BE'RIS, a genus of dipterous insects, of the family *Xylophagidæ*. The species of this genus are small metallic-coloured flies, which frequent the leaves of plants. Their larvæ feed on putrescent wood. The generic characters are as follows:—Body narrow; palpi minute, the third joint thickened a little at the extremity; the two first joints of the antennæ equal, third elongate subulate; eyes pubescent; the scutellum with four, six, or eight points; abdomen with seven distinct segments; the first joint of the posterior tarsi incrassate in the male: the wings have four posterior cells, and sometimes the indication of a fifth.

The ova of one of the species of this genus (*beris clavipes*) are said to be ejected from the ovipositor in the form of a little chain, about an inch long, consisting of a single series of oval eggs, which are glued to each other in an oblique position. Most probably the eggs of the other species are ejected in the same manner.

BERKELEY, a parish in the hundred of Berkeley, in the county of Gloucester, 16 miles from Gloucester, 113 from London, is divided into the borough of Berkeley, the tithings of Alkington, Breadstone, Ham, Hamfallow, Hinton, and the chapelry of Stone. This place, according to Domesday survey, must have been of great extent, population, and opulence, the town itself being a royal demesne and free borough held of the crown; and in that survey this town is one of the only two places in the county of Gloucester which are stated as having a market, Tewkesbury being the other. Here, also, in former times, was a wealthy nunnery, which owed its dissolution to Earl Godwin. The town, which consists of four streets diverging from the market-place, is situated on a small river called the Avon, which empties itself into the Severn, a mile and a half from the town.

n 1831 the inhabitants of the town were 901, and of the ish 3899: the latter contains 14,680 acres. The principal le of the town is in coals, which are imported from the est of Dean in small vessels, which at spring-tides can ne up to the town; but this trade, owing to the diminution he cloth manufacture in Gloucestershire, has of late con- erably declined. The surrounding country consists almost irely of rich meadow-lands, and the vale of Berkeley has g been deservedly celebrated for its excellent cheese. The st side of the parish is bounded by the Severn, which has e a width varying from two miles to three quarters of a e. The parish church, dedicated to St. Mary, is a very large l handsome structure, in the pointed style. The west ndow is large, and very beautiful. Near the pulpit are two umbent figures, which represent Thomas Lord Berkeley l Margaret his wife. The former is the original of the racter of that name in Shakspeare's play of *Richard the ond.* A simple tablet in the chancel marks the burial ce of Jenner, the discoverer of vaccination, who was a ive of this place. Adjoining the chancel is the mau- eum of the Berkeley family, in which are several very rious monuments. In the church is sculptured a large d, with the heads of two children under it, the tradi- n relating to which is that the toad devoured two of the ildren of one of the lords of Berkeley. The tower, which square and modern, has six bells, and is situated at a con- erable distance from the church. The living is a vicar- e, of which Lord Segrave is the patron. The great tithes the parish belong to the dean and chapter of Bristol. ere is a chapel of ease at Stone, three miles distant from church; and of four chapels belonging to dissenters two in the town and two in the tithings. Sunday schools taught at the church and at the dissenting chapels; l there is an endowed school for the education of 38 boys d girls in reading, writing, and arithmetic.

The fairs are on the 14th of May and the 1st of December. esday is the market-day; and there are markets for cattle the first Tuesday in April, and the first Tuesday in No- nber. A new market-house was erected in 1825, the vn-hall over which is now used as a chapel by dissenters the sect of Independents.

Two miles and a half from the town, at Sharpnesse Point long, low, projecting rock on the eastern bank of the vern), is the entrance into the Gloucester and Berkeley nal. This canal is 18 feet deep, and 60 feet in width, d is navigable for vessels of 600 tons burden. This nal, after traversing a distance of 16 miles (part of its urse being only divided from the Severn by the canal- nk), terminates at Gloucester, where there is a com- dious basin, bonded yards, and ample warehouses. The ney for excavating the canal was raised in shares, but it not being sufficient to complete the work, a loan was nted by government, the payment of the interest on ich prevents much profit being made by the shareholders. e opening of the canal took place in 1826. Owing to the tractions of the river at this part, the tide rushes past th great rapidity, so that it requires considerable skill, and knowledge of the proper time of the tide, to enable a ot to conduct a ship with safety into the canal. On the rth bank of the canal is the towing-path: 12s. a horse is d for towing a vessel to Gloucester. A vessel of 50 tons quires one horse, and an additional horse is added for ery 50 tons up to 150; in vessels above 150 tons one rse is added for every 100 tons up to 350, above which rden all vessels have six horses. Besides the home trade, vessels are principally from the West Indies, and from Baltic with deals and timber, a part of which is gene- ly floated up the canal, that the ship may draw less ter. The trade, notwithstanding the dangerous naviga- n of the Severn, has increased very much of late, and ntributed to the prosperity of Gloucester. In one week, the summer of 1834, 146 vessels went up the canal to oucester, the tonnage of which was 7900 tons.

In the year 1833, tonnage	.	346,773 tons.
„ 1834, „	. .	399,364 „
Increase	.	52,591 tons.

1833. Canal Receipts	. .	£12,136	5	0
1834. „	. . .	13,448	0	6
Increase	.	£1,311	15	6

Customs Revenue.—

1833. Duties inward	. .	£106,751	0	0
1834. „	. . .	131,117	0	0
Increase	.	£24,366	0	0

Berkeley Castle is situated at the south-east side of the town. It is not ascertained at what date this building was commenced, but about the year 1150 it was granted by Henry II. to Robert Fitzhardinge, governor of Bristol (who was descended from the kings of Denmark), with power to strengthen and enlarge it. Maurice, the son of Robert, was the first of the Fitzhardinges that dwelt at Berkeley, of which place he assumed the name, and fortified the castle, which is situated on an eminence close to the town, and commands an extensive view of the Severn and the neighbouring country. The castle of Berkeley is a most perfect specimen of castellated building: it is in complete repair, and not ruinous in any part. It is an irregular pile, consisting of a keep and various embattled buildings, which surround a court of about 140 yards in circumference. The chief ornament of this court is the fine exterior of the baronial hall, which is a noble room in excellent preservation, and adjoining it is the chapel. The apartments are very numerous, but except where modern windows have been substituted, they are mostly of a gloomy character. In one of them is the ebony bed and chairs used by Sir Francis Drake in his voyage round the world. The entrance to an outer court is under a machicollated gate-house, which is all that remains of the buildings which are said to have formerly surrounded the outer court. The keep is nearly circular, having one square tower and three semicircular ones. That on the north, which is the highest part of the castle, was rebuilt in the reign of Edward II., and is called Thorpe's Tower, a family of that name holding their manor by the tenure of *castle guard,* it being their duty to guard this tower when required. In another of the towers of the keep is a dungeon chamber, twenty-eight feet deep, without light or any aperture of any kind except at the top: in shape it resembles the letter D, and the entrance to it is through a trap door in the floor of the room over it; but, from being in the keep, which is high above the natural ground, this gloomy abode is quite free from damp. The Roman method of filling the inner part, or medium of the walls, with fluid mortar, occurs in the keep of this castle. The great staircase leading to the keep is composed of large stones; and on the right of it, approached by a kind of gallery, is the room in which, from its great strength and its isolated situation, there is every reason to suppose that Edward II. was murdered, with circumstances of great atrocity, on the 21st of September, 1327. It is a small and gloomy apartment, and till within the last century was only lighted by fleches. It is stated by Holinshed that the shrieks of the king were heard in the town; but from the situation of the castle and the great thickness of its walls, that is quite impossible. After his decease his heart was inclosed in a silver vessel, and the Berkeley family formed part of the procession which attended the body to Gloucester, where it was interred in the cathedral.

The then Lord Berkeley was acquitted of any active participation in the measures which caused the death of the king; but shortly afterwards he entertained Queen Isabella and her paramour Mortimer at the castle. This Lord Berkeley kept twelve knights to wait upon his person, each of whom was attended by two servants and a page. He had 24 esquires, each having an under servant and a horse. His entire family consisted of about 300 persons, besides husbandmen, who fed at his board. In this castle royal visiters have been several times entertained. After its having been a place of rendezvous for the rebellious barons in the reign of John, that king visited it in the last year of his reign. Henry III. was there twice. The other royal visitors have been Margaret, queen of Henry VI.; Henry VII.; Queen Elizabeth, whose name one of the rooms still bears; George IV., when Prince of Wales: and his present Majesty, when Duke of Clarence. In the reign of Henry V. a law-suit was commenced between Lord Berkeley and his cousin, the heiress of the family, which was continued 192 years: during which contest the plaintiff's party several times laid siege to the castle. In the civil wars of Charles I. this castle was garrisoned on the side of the king, and kept all the surrounding country in awe; but it was afterwards besieged by the army of the Commonwealth, and surrendered after a defence of nine days. In the west door of the church are several bullet holes, which are supposed to have been made by the besieging army. On the north of the castle is a very perfect remain of the antient fosse, which is now quite dry, and some very fine elms and other trees are growing in it. A terrace goes nearly round the castle, and to the west of it is a large bowling-green, bounded by a line of very old yew trees, which have grown together into a continuous mass, and are cut into curious shapes.

(Smythe's *Life of the Berkeleys*; Atkins's *Hist. of Gloucestershire*; Rudge's *Hist. of Gloucestershire*; Fosbrooke's *Hist. of Gloucestershire*; and *Communication from a Correspondent.*)

BERKELEY, GEORGE, son of William, of Thomastown, in the county of Kilkenny, was born at Kilcrin, near Thomastown, on the 12th of March, 1684. He received his early education at Kilkenny school under Dr. Hinton, was admitted a pensioner of Trinity College, Dublin, at the age of fifteen, and having stood successfully a strict examination, he was admitted a fellow on the 9th of June, 1707. In the same year he published his first work, 'Arithmetica absque Algebra aut Euclide demonstrata,' written before he was twenty years of age, and chiefly remarkable as showing the early bent of his mind and studies. His next work, published in 1709, was 'The Theory of Vision,' and in the following year 'The Principles of Human Knowledge' appeared. The perusal of Locke's two treatises on government having turned the attention of Berkeley to the doctrine of passive obedience, he published in 1712 a discourse in favour of it, being the substance of three sermons delivered by him in that year in the college chapel, which passed through several editions, but did him some injury by preventing Lord Galway from giving him some preferment in the Church of Ireland, for which he applied. In order to publish his 'Dialogues between Hylas and Philonous' he left Ireland in 1713 and went to London, where he was introduced to literary and fashionable society by two men very opposite in their political principles—Sir Richard Steele and Dr. Swift. He wrote several papers in the 'Guardian' for the former, and in his house formed a friendship with Pope, which continued during the remainder of his life. Berkeley was recommended by Swift to the celebrated Earl of Peterborough, with whom he set out as chaplain and secretary, in November, 1713, on his embassy to Sicily. His lordship, however, left his chaplain and part of his retinue at Leghorn, and proceeded on his embassy. On his return to England in August, 1714, with Lord Peterborough, the fall of Queen Anne's ministry having shut out all hope of preferment through this channel, he some time after became companion to Mr. Ashe, son of Dr. St. George Ashe, bishop of Clogher, on a tour through Europe, which occupied more than four years. At Paris he visited Malebranche, and entered into a discussion with him on the ideal theory, which was conducted with so much heat that the excitement is said to have hastened the death of the French philosopher. When in Sicily he compiled materials for a natural history of the island, but these papers, together with his journal, were lost during his journey to Naples. On his way home he wrote his tract, 'De Motu,' at Lyons; and as they had proposed the subject, sent it to the Royal Society of Paris, and shortly after his arrival in London printed it in 1721. Seeing the misery produced about this time by the South Sea Scheme, he published 'An Essay towards preventing the Ruin of Great Britain.'

He was now received into the first society. Pope introduced him to Lord Burlington, by whom he was recommended to the Duke of Grafton, lord-lieutenant of Ireland. On becoming chaplain to this nobleman he took the degrees of bachelor and doctor in divinity of Trinity College, Dublin.

About this time his fortune was unexpectedly enlarged. On his first visit to London, Swift had introduced him to Mrs. Esther Vanhomrigh, the celebrated *Vanessa*. When this lady discovered the marriage between Swift and *Stella* she altered her will, and left the 8000*l.*, which she intended for him, to Mr. Marshal and Dr. Berkeley, her executors. Berkeley did not, however, publish her correspondence with Swift, though she left this injunction in her will, but committed the letters to the flames. In 1724 Dr. Berkeley was made dean of Derry, a place worth 1100*l.*, and he resigned his fellowship in consequence. From the time of his return to England he had occupied himself with a scheme for the conversion of the North American savages by means of a missionary college to be erected in the Bermudas. He published his plan in London in 1725, and offered to resign his preferment and dedicate his life to this benevolent project on an income of 100*l.* a year. Having prevailed on three junior fellows of Trinity College, Dublin, to consent to accompany him on incomes amounting to 40*l.* per annum, and having obtained, by showing the political advantages likely to result from his scheme, a charter for his college, and a promise of 20,000*l.* from the minister, he expressed his delight in some verses, which show the benevolence and the enthusiasm by which he was actuated. The verses begin,

'The muse, disgusted at an age and clime
Barren of every glorious theme.'

He resisted the temptation of an English mitre offered him by Queen Caroline; and though he married in August, 1728, Anne, eldest daughter of Mr. Forster, the Speaker of the Irish House of Commons, he was not to be turned from his purpose by any prospect of advantage from such a connexion, but sailed in the middle of the ensuing month for Rhode Island with his wife, a Miss Handcock, two gentlemen of the names of James and Dalton, a valuable library of books, and a large sum of his own property. The fellows of Trinity College do not appear to have accompanied him. He took up his residence at Newport, in Rhode Island, and for nearly two years devoted himself indefatigably to his pastoral labours. The government, however, disappointed him, and he was compelled, after spending much of his fortune and seven years of the prime of his life on forwarding his scheme at home and in America, to leave the scene of his philanthropic enterprise and return to England. Before he left, however, he presented his books to the clergy of the province, and on reaching London took the whole loss upon himself by returning all the subscriptions which he had received. In February, 1732, he preached before the Society for the Propagation of the Gospel in Foreign Parts. The same year he published his 'Minute Philosopher,' a series of dialogues on the model of Plato. Of this work Bishop Sherlock of London presented a copy to Queen Caroline, with whom Berkeley had many interviews after his return, and by whose patronage he was promoted on the 17th March, 1734, to the vacant bishopric of Cloyne, a see to which he was consecrated by the archbishop of Cashel on the 19th May following. He repaired immediately to the residence at Cloyne, and to the exemplary discharge of all his episcopal duties. Hearing from Addison that their common friend Dr. Garth on his death-bed attributed his infidelity to the opinions of Dr. Halley, whose mathematical education had much influenced Garth, the bishop was induced to write the '*Analyst*,' a work addressed 'to an infidel mathematician,' which excited a good deal of controversy. In 1735 appeared his *Queries* proposed for the good of Ireland, and next year his Discourse addresed to Magistrates.'

Having received benefit from the use of tar-water when ill with the colic, he published in 1744 'Siris,' a work on the virtues of tar-water, on which he said he had bestowed more pains than on any other of his productions: he published a second edition with emendations and additions in 1747. During the Scotch Rebellion in 1745 he addressed a letter to the Roman Catholics of his diocese, and in 1749 another to the clergy of that persuasion in Ireland, entitled 'A Word to the Wise,' distinguished by so much good sense, candour, and moderation, that he received the thanks of the parties whom he addressed. When Lord Chesterfield, in 1745, offered him the see of Clogher, worth twice as much as the one he held, he refused it because he had already enough to satisfy his wishes, and because he admired the beauty of the situation of Cloyne. His 'Maxims concerning Patriotism' appeared in 1750. His last work was 'Further Thoughts on Tar-Water,' published in 1752. In July this year he determined on going with his family to Oxford to superintend the education of his son and enjoy that learned retirement to which he was attached. He was, however, so impressed with the evils of non-residence that he actually petitioned the king for leave to resign his see, but his majesty was determined he should die a bishop in spite of himself and refused his application, giving him at the same time permission to reside wherever he pleased. His last act before leaving Cloyne was to make an arrangement by which 200*l.* a year would be distributed during his absence to the poor householders of Cloyne, Youghal, and Aghadda.

In July, 1752, he removed to Oxford, where he was treated with great respect. On Sunday evening, January

14, 1753, while lying on his couch listening to one of Bishop Sherlock's sermons which his lady was reading to him, he was seized with what his physicians called a palsy of the heart, and expired so suddenly and quietly that it was only when his daughter went to give him a cup of tea that she perceived he was quite dead. His remains were interred in Christ Church, Oxford, and an elegant monument was erected to his memory by his widow. He had three sons and a daughter. In person he was stout and well-made, his face was benignant and expressive, and his manners elegant, engaging, and enthusiastic. The information with which his mind was stored embraced not merely professional and philosophical learning, but trade, agriculture, and the common arts of life. Besides the works already mentioned he wrote some smaller pieces, which appeared in a collection printed in Dublin in 1752 under the title of 'Miscellanies.'

It shows the enthusiastic character of Berkeley, that, when accused of fancying he had discovered a panacea in tar-water, he replied, that 'to speak out, he freely owns he suspects tar-water is a panacea.'

The writings of Berkeley, which contain his peculiar opinions, consist in an attack upon the anti-christian tenets which began to prevail before his time. To look upon his literary labours as a whole, it will be necessary to remember, 1, the consequences of the court of Charles II. 2, the shock which had been given to all prevailing notions of mental philosophy by the introduction of the writings of Locke. 3. The new view of the power of natural philosophy consequent upon the mathematical discoveries of Newton. 4. The extensive remnants of the old philosophy, which insinuated themselves, more or less, into the newly cultivated branches of science. The 'Minute Philosopher' is addressed to the infidel man of pleasure; the 'Analyst' to the infidel mathematician; the 'Principles of Human Knowledge,' and the 'Dialogues of Hylas and Philonous' to the infidel metaphysician. We shall take them in order of publication.

Principles of Human Knowledge—Dialogues of Hylas and Philonous. The prevailing notion of matter, from the earliest ages downwards, had been that of a substance possessing an existence independent of faculties capable of perceiving it. The atheism of several ancient sects was entirely based upon a notion that matter might exist without a God, or in conjunction with, though independently of, a God. The argument of Berkeley may be divided into two parts. In the first he attacks the common notion of matter by the assertion that there is no proof of its existence anywhere but in our own perceptions; in the second he asserts the impossibility of any such independent existence. The first point is, and always will be, misunderstood by those who do not pay the closest attention to the meaning of his terms. For instance, Dr. Samuel Johnson, who was frequently happy in perceiving verbal distinctions, said he refuted Berkeley's theory by stamping with his foot upon the ground. That is, he imagined that Berkeley denied the existence of the perception of solidity, which of course was not the case.

The existence of matter seems so bound up with our notions of ourselves, and so completely demonstrated by our senses, that the question raised by Berkeley will be better understood by referring to something in which there is the same question in a more open form. Let the reader turn to the article Attraction (v. iii. p. 69), in which it is asserted that Berkeley's attack on matter is the same as that of a certain class of speculators on attraction. The connexion is as follows; the earth moves exactly as it would move if the sun attracted it *physically* (see v. iii. p. 68). To any one who should assert *physical* attraction (as there defined) it might be justly answered that the mere phenomenon only proves that the Creator wills that sort of effect to take place which does take place; but whether by what our imperfect ideas would express by *direct agency*, or whether by subordinate agency (or by means of angels as in Milton), or whether by means of a positive attracting quality which is made a constituent part of the essence of matter, as much as extension or impenetrability, and therefore as much beyond the reach of further inquiry; or whether by means of any intermediate physical agent, such as a fluid or other distinct kind of matter—cannot be known. For it is little more than a verbal truism to say that an effect which may arise from twenty different species of causes must not be positively assigned to any one of them.

To the believer in an intelligent Creator (and it is only to such that the negative part of Berkeley's argument applies) the case may be thus put. You admit that your existence and your power of perceiving, as well as the perceptions by which the second makes you know the first, are ultimately (whatever may be the intermediate steps) to be traced to the will of the Creator. You cannot figure to yourself the uniform nature of the perceptions which you receive as coming directly from the Creator, but you suppose a power of imparting them to be made inherent in a certain *substratum* (this is Berkeley's word) which you call matter? But if you admit that it is in the power of the Creator to furnish you directly with those ideas of space, figure, colour, &c. which to you constitute the material world, without any intervention of which you can form a positive conception; how do you know that he has not done so? The answer must be that there is no such knowledge; and this is the point on which Berkeley has never been, and it is not too bold an assertion to say never can be, refuted.

The positive part of Berkeley's theory, in which he asserts the impossibility of matter, lays him open to precisely the same answer which those may receive who actually assert its existence. We cannot in our limits show the several grounds on which he supposes he has established his point. He has a notion that what he calls an *idea* (we should say *perception*) cannot be imparted unless there be something resembling the idea in that which communicates. It is very difficult to abbreviate an argument which handles the nature of ideas, but the leading notions seem to us to be contained in the following quotation (*Works*, v. i. p. 26), with which we shall close this part. The reader will observe that axioms are assumed as doubtful at least, and by no means so convenient as that of the existence of matter; also that the first paragraph assumes the point in question.

'Some truths there are so near and obvious to the mind that a man need only open his eyes to see them. Such I take this important one to be, to wit, that all the choir of heaven and furniture of the earth, in a word, all those bodies which compose the mighty frame of the world, have not any subsistence without a mind; that their being is to be perceived or known; that consequently so long as they are not actually perceived by me, or do not exist in my mind or that of any other created spirit, they must either have no existence at all, or else subsist in the mind of some eternal spirit.'

'There is not any other substance than spirit, or that which perceives.' 'For an idea to exist in an unperceiving thing, is a manifest contradiction; for to have an idea is all one as to perceive; that therefore wherein colour, figure, and the like qualities exist, must perceive them; hence it is clear there can be no unthinking substance or substratum of these ideas.'

'But say you, though the ideas themselves do not exist without the mind, yet there may be things like them whereof they are copies or resemblances, which things exist without the mind, in an unthinking substance. I answer, an idea can be like nothing but an idea; a colour or figure can be like nothing but another colour or figure.'

Alciphron, or *the Minute Philosopher.* This is a series of dialogues between two atheists and two Christian theists. The former are of the class of 'good company' philosophers who have disappeared with 'wit' and 'verses.' The following caricature of them is in the dialogues.

Euphranor. Where doth he pick up all his improvement?

'*Crito.* Where our grave ancestors would never have looked for it, in a drawing-room, a coffee-house, a chocolate-house, at the tavern, or groom-porter's. In these and the like fashionable places of resort, it is the custom for polite persons to speak freely on all subjects, religious, moral, or political. So that a young gentleman who frequents them is in the way of hearing many instructive lectures, seasoned with wit and raillery, and uttered with spirit. Three or four sentences from a man of quality, spoke with a good air, make more impression and convey more knowledge than a dozen dissertations in a dry academical way. You may now commonly see (what no former age ever saw) a young lady or a *Petit Maitre* nonplus a divine or an old-fashioned gentleman who hath read many a Greek and Latin author, and spent much time in hard methodical study.'

The Analyst, and *Defence of Freethinking in Mathematics.* The object of these tracts (the second of which is a rejoinder to a reply to the first) is by pointing out the difficulties in the subject of fluxions, then almost newly invented, to show one of two things; either that mathematicians were not such masters of reasoning as to make their opinions on religious subjects more valuable than those of other people; or else that there were, in the science of fluxions, incomprehensible points as difficult as those of religion, and yet logically established. It was a very dangerous use of analogy, considered with reference to the interests of the cause it was meant to serve; but it is by no means the only instance of an attempt to place mathematical on a similar footing with moral difficulties. The points on which Berkeley insisted have since been cleared up, and the publication of the *Analyst* was the immediate cause of the work of Maclaurin on the subject.

The style of Berkeley is very clear, and his bold method of thinking and absence of all adhesion to great authorities make his works, even now, valuable to the student. These same qualities make them difficult to describe, and the peculiar nature of the subjects which he treated has caused them to be misrepresented, so that their true scope is less understood than that of any other writings of his day.

(See his *Life* prefixed to his works published in 2 vols. 4to. in 1784, written by the Rev. Dr. Stock from particulars furnished by Berkeley's brother, and first published anonymously in 1776; Howard's *Essays and Dissertation*, and Sir James Mackintosh's *Dissertation, Enc. Brit.*; Adam Smith's *Essays on Philosophical Subjects*, London, 1795.)

BERKENHOUT, DR. JOHN, the son of a Dutch merchant, was born at Leeds about the year 1730. He was educated partly at the grammar-school of that town, and partly in Germany; and he afterwards made the tour of Europe in company with one or more English noblemen. He then entered the Prussian service as a cadet, and rose to the rank of captain. When the war broke out between England and France in 1756, he quitted the Prussian and obtained a company in the English service. On the conclusion of peace in 1760 he quitted the army, and commenced the study of physic at Edinburgh. During his residence there he wrote a work entitled 'Clavis Anglica Linguæ Botanicæ; or a Botanical Lexicon, in which the terms of botany, particularly those which occur in the works of Linnæus and other modern writers, are lied, derived, explained, contrasted, and exemplified.' ondon, 1764, small 8vo. not paged.) This is a useful le work, and perhaps the first of its kind published. he following articles are short specimens of this lexicon:—

'Calycifibræ (a calyx, and fibra, a fibre), atural class in Scopoli's *Flora Carniolica*.'

'PANDURIFORME *folium* (*Pandura*, a musical instrument), shaped like a Spanish guitar, *oblongum, inferne latius, lateribusque coarctatum*.

'SAGITTATUM *folium* (sagitta, an arrow), a leaf shaped like the head of an arrow, *triangulare, basi excavatum, angulis posticis instructum*, as in the *Convolvulus arvensis*, and *sepium, Rumex acetosa, Erica vulgaris*.'

Berkenhout took the degree of doctor of physic at Leyden in 1765, on which occasion he published his 'Dissertatio Medica inauguralis de Podagrâ,' dedicated to his relation Baron de Bielfeld (4to. pp. 28). On returning to England, Dr. Berkenhout settled at Isleworth in Middlesex; and until his death, which took place in 1791, employed a great part of his time in writing on an immense variety of subjects. In 1766 his 'Pharmacopœia Medici' appeared, which reached a third edition in 1782. The third edition is a small octavo of 117 pages; it consists of a list of simple substances, with a description of their properties, followed by a table of doses, and a selection of prescriptions. The following list of synonyms to *Alkali Vegetabile* (potash) may interest some readers. Cineres Russici, Cineres Clavellati, Pot ashes, Pearl ashes, Alkahest Glauberi, Marcoft, Blanch ashes, Cendres Gravellées, Sal Tartari, Sal Absinthii, Nitrum fixum, Fluxum nigrum, Cassob., Lapis infernalis. (3rd edition, p. 11.)

His 'Outlines of the Natural History of Great Britain and Ireland' came out by a volume at a time in 1769, 1770, and 1771. The copy at the British Museum is bound up with a short treatise entitled the 'Naturalist's and Traveller's Companion' (London, 1772, 8vo. pp. 69). It has no name, but is probably by the same indefatigable author.

In 1771 he published 'Dr. Cadogan's Dissertation on the Gout examined and refuted;' and in 1777 'Biographia Literaria; or a Biographical History of Literature, containing the lives of English, Scotish, and Irish authors, from the dawn of letters in these kingdoms to the present time, chronologically and classically arranged:' London, 1771, 4to. pp. 537. This volume contains the authors who lived from the beginning of the fifth to the end of the sixteenth century. In a very long preface dated from Richmond in Surrey, the author promises his readers a second, third, and fourth volume, but they never made their appearance.

Dr. Berkenhout's next work was 'A Treatise on Hysterical Diseases, translated from the French.' In 1778 he was sent with certain commissioners appointed to treat with America, and on his return obtained a pension in consideration of his political services, and the losses sustained by giving up practice for a time.

In 1780 he published 'Lucubrations on Ways and Means, inscribed to Lord North.' His next work was an 'Essay on a Bite of a Mad Dog;' and in the following year he published his 'Symptomatology.' The writer of his life in Chalmers's 'Biographical Dictionary,' to whom we are indebted for most of these particulars, speaks of the 'Symptomatology' as of a book, 'too universally known to require any recommendation.' Yet it is a book which we have never seen even in a quotation or a catalogue, and of which we suspect that it would not be very easy at present to procure a copy.

In 1788 appeared Dr. Berkenhout's 'First Lines of the Theory and Practice of Philosophical Chemistry.' The title 'First Lines' is taken from Cullen's 'First Lines of the Practice of Physic,' as that again was probably borrowed from Haller's 'Primæ Lineæ Physiologiæ.' The biographer just quoted says, that the book 'exhibits a satisfactory display of the present state of chemistry.' In our opinion it hardly exhibited the state of chemistry even at the time it was published, but was a smart, pleasant, readable introduction to the science. The eulogy in question, however, was probably reprinted from a contemporary writer.

In 1779 he published a continuation of Campbell's 'Lives of the Admirals,' 4 vols. 8vo. His last publication, according to the writer of his life, was 'Letters on Education, to his Son at Oxford,' 1791, 2 vols. 12mo. Whether this is a mistake or not we will not venture to decide, but we think it probable. We have seen a similar work entitled 'A Volume of Letters from Dr. Berkenhout to his Son at the University,' but it is in one octavo volume (of 374 pages), is printed in 1790, and addressed to a son at the University of Cambridge. Some of these letters are curiosities of their kind. Thus, in the tenth letter, the author, not being surprised that his son has forgotten at the Charter-house all the arithmetic that he knew before his admission, begins to instruct him in the very elements of the science. In the twenty-second and twenty-third letters he supposes his son equally ignorant of geography, and after furnishing him with a few of the more prominent facts in this branch of knowledge, he says 'Thus, I flatter myself, I have fulfilled my promise in communicating, in the compass of two not very long letters, as much geographical knowledge as you will ever want.' (p. 211.) This satisfying system of geogra is contained in eighteen loosely printed octavo pages.

The last 140 pages are o ied with botany, and this is certainly the best part of work. In a series of imaginary herborizing excur s, Berkenhout demonstrates many of the plants growing about Cambridge, and he would appear to have been really on the spot when writing, for he continually uses such phrases as 'There is one now in the walks of Queen's College.' 'Three days ago I met with a specimen at the back gate of St. John's.' 'This *Salvia verbenacea* you will find in great plenty in the field-path opposite the horse-bridge of Trinity College.'* &c. &c. These were the principal works of Dr. Berkenhout, a man who, though certainly undeserving of the lavish panegyrics of his friends, left but little to be said against him by his enemies. He was active, energetic, and indefatigable, from the earliest to the latest years of his life, and though he has no claim to the rare praise of creating knowledge, it would be unjust to de him the credit due to those who acquire and diffuse it.

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* Dr. Berkenhout says loes not know where Linnæus got the word *conium*, 'unless from Pli o, I think, mentions it as the name of a town in Phrygia.' Linnæus ob d *conium* from the fountain whence many Latin words of the kind came: the Greek κώνειον (koneiun.) is found in the best authors.

BERKHAMPSTEAD, or more properly, BERKHAMSTED, or, at length, BERKHAMSTED ST. PETER'S, a market-town situated in a deep valley, on the south-west side of the river Bulborn and the Grand Junction Canal, which here run together in a line parallel to the high road: it is in the county of Hertford and hundred of Dacorum, twenty-six and a half miles N.W. from London. The town seems to be of Saxon origin: the name is certainly Saxon. Norden says that the Saxons called it *Berghamstedt* because it was seated among the hills, *Berg* signifying a hill, *Ham* a town, and *Stedt* a seat; or we may consider it compounded of the words *Burg*, a fortified place, and *Ham-Stede*, the fortified Hamstede (homestead), to distinguish it from Hehan Hampstede, now corrupted to Hemel Hampstede, a town in the neighbourhood. The addition of St. Peter's distinguishes this Berkhamsted from Berkhamsted St. Mary, otherwise Northchurch, also in this neighbourhood. The kings of Mercia had certainly a palace or castle at this place, and to this we may attribute the growth, if not the origin, of the town. William the Conqueror came to Berkhamsted on his way through Wallingford to London after the battle of Hastings, and was obliged to make some stay there, his further progress having been intercepted by Frederic, abbot of St. Alban's, who caused the trees that grew by the road side to be cut down and thrown across the way. A grand meeting was afterwards held at Berkhamsted between William and the nobles and prelates who belonged to the powerful confederacy which this abbot, who was of the royal blood of the Saxons, had organised with the object either of compelling the Norman to rule according to the antient laws and customs of the country, or else of doing their utmost to raise Edgar Atheling to the throne. William thought it prudent to take the required oath, which was administered by Frederic, upon the relics of St. Alban. It is well known how William neglected this oath when he was firmly seated on the throne. In the distribution of territory among his followers which then took place, the castle and manor of Berkhamsted were given to his half-brother the earl of Moreton. Domesday Book informs us that the property was rated at thirteen hides, and that it was worth twenty-four pounds in the time of King Edward, twenty pounds when bestowed on the earl, but only sixteen pounds at the then present time. Among other curious particulars in this account, it is mentioned that the land contained two arpends of vineyards. There were in the borough at this time fifty-two burgesses who paid four pounds a-year for toll, and had half a hide, and two mills of the annual rent of 20*s*. The earl enlarged and strengthened the castle; but in the time of his son it was seized by Henry I., and, according to most accounts, razed to the ground, and the town and manor reverted to the crown. Henry II. held his court there at one time, and granted very valuable privileges 'to the men and merchants of the Honour of Wallingford and Berkhamsted St. Peter's.' Among them it was granted that they should have 'firm peace in all his land of England and Normandy, wheresoever they shall be,' with the enjoyment of all the laws and customs which they had in the time of King Edward the Confessor, and King Henry his grandfather. He also granted that wheresoever they should go with their merchandises to buy or sell through all England, Normandy, Anjou, and Aquitaine, they should be free from all toll and all secular customs and exactions, and all servile works; and should any man vex or disturb them, he rendered himself liable to a penalty of ten pounds.

Robert Moreton, the Conqueror's brother, was Earl of Cornwall; and we find that the honour of Berkhamsted almost invariably accompanied every subsequent grant of that earldom. The castle was rebuilt in the reign of King John, and was afterwards besieged by Louis the Dauphin of France, who had come over to assist the discontented barons. The besieged held out till the king sent them orders to surrender. When Edward III., in the 28th year of his reign, advanced his eldest son Edward the Black Prince to the title and dignity of Duke of Cornwall, the castle and manor of Berkhamsted were given to him, 'to hold to him, and the heirs of him, and the eldest sons of the kings of England, and the dukes of the said place.' Accordingly, the property has since descended from the crown to the successive princes of Wales, as heirs to the throne and dukes of Cornwall, under whom it has for the last three centuries been leased out to different persons.

The place seems altogether to have declined in importance since it ceased to be even occasionally a royal residence. The castle appears to have been gradually ruined by neglect. The mansion house, now called Berkhamsted Place, is said to have been erected out of the ruins of the castle, early in the seventeenth century. The greatest part of this mansion was destroyed by fire about 1661, and only about a third part was afterwards repaired, which forms the present residence. The castle itself was situated to the east of the town, and though the buildings are now reduced to a few massive fragments of wall, enough remains to evince the antient strength and importance of the fortress. The works are of a circular form, approaching to the figure of an ellipsis, and include about eleven acres. It was defended on the north-west side by a double and on the other sides by a triple moat; these moats are still in some parts wide and deep. The original entrance was at the south-east angle. On the bank between the second and third moat, from the outside, are two rude piers of masonry, between which the entrance probably lay over draw-bridges connecting the several moats. The space inclosed by the inner moat is surrounded by a wall constructed with flints coarsely cemented together, within which stood the habitable part of the castle. Strongly as this castle was fortified, it could not have been tenable after the invention of cannon; as its site, though elevated, is commanded by still higher eminences on the north and north-east.

At the parliaments holden at Westminster in the 11th and 13th of Edward III., Berkhamsted had two representatives, but there is no record of such return from this place on any other occasions. So also its charter of incorporation, granted by James I., scarcely survived the reign of his son Charles, who is said to have had a great affection for the place, in consequence of having been nursed at the manor-house with his elder brother Henry, under the care of Mrs. Murray. It is certain that the place was much distinguished by the favour of Charles, both before and after his accession to the throne. When James I. was about to incorporate the town, many of the inhabitants petitioned against the measure under the apprehension that the new charter might impair or destroy some of the important privileges which they already enjoyed under antient grants. After the Restoration an attempt was made to revive the corporations, but it did not succeed. The petty sessions for the Berkhamsted division are held in the town. There is a market on Saturday, and fairs are held on Shrove-Monday and Whit-Monday for cattle; 5th August for cheese; 29th September and 11th October, the two last being the statute fairs. The parish contained 484 houses in 1831, with a population of 2369 persons, of whom 1287 were females.

The town of Berkhamsted consists of two streets. The principal, called the High Street, extends about half a mile along the high road; the other, which is smaller, branches out from the church towards the site of the castle, and is hence called Castle Street. The houses are mostly of brick, and irregularly built, but are interspersed with a fair proportion of handsome residences. The church, which is dedicated to St. Peter, stands in the middle of the town, and is built in the form of a cross, with a square embattled tower rising from the intersection. This tower contains four handsome Gothic windows, and has at the south-east angle a projecting octagonal staircase. On the outside of the tower, next the street, there is a sculpture of an angel supporting a shield, on which the arms of England impale those of the church of St. Paul. The nave is divided from the aisles by five columns and two half columns on each side, sustaining plain pointed arches, over each of which is a pointed arched window. The western window is large and ramified; all the others are like it, in the pointed style, but vary in size and description. Various small chapels and chantries were founded here in Catholic times, and are still partially divided from the body of the church. It contains a large number of sepulchral memorials, some of which are very curious and interesting. One of the least obtrusive is in memory of the mother of Cowper the poet, who was born at the parsonage house on the 26th November, N. S., 1731, his father, Dr. John Cowper, being then rector of the parish. The living, which is a rectory in the diocese of Lincoln, is in the gift of the crown, and its present average net income is 333*l*. The church accommodates 1106 persons.

The donations which have been made to this parish for the erection of almshouses, and otherwise for the relief of the poor, are so numerous, but of so little consequence separately, that it is sufficient to limit our notice to the establishments for education. In the 15th of Henry VIII. the inhabitants of Berkhampsted agreed to appropriate the lands of their guild or brotherhood of St. John the Baptist (which had formerly supported an hospital for poor sick persons and lepers), to the erection and support of a free school in the town. Dr. Incent, Dean of St. Paul's, London, who was a native of the town, and president of the guild, actively promoted this transaction, and added to the endowment his own lands in the town. Afterwards fearing that the name of 'brotherhood' might render the endowment insecure, he procured a charter of incorporation from the king, which was supplied by a new charter in the following reign. Authority having thus been obtained to erect and found 'one free school within the said town, of one meet man being a schoolmaster, and the other meet man being an usher, for the teaching of children in grammar, freely, without any exaction or request of money for the teaching of the same children not exceeding the number of 144,' the present school-house, a large and strong brick building near the church, was erected: and in the next reign the establishment was incorporated as a royal foundation. All Souls College is visitor under the charter of Edward VI. The annual value of the property is now 634*l.*, and the salary of the master (appointed by the king) is 250*l.*, and that of the usher 125*l.*; but for a long time this rich foundation has been altogether inefficient. An old parishioner stated, in 1830, to the commissioners for inquiry concerning charities, that he did not remember more than five free boys in the school at any one time during the last fifty or sixty years. The master and usher of this school have for a long time been either irregularly resident or non-resident (1835).

A charity school was founded in 1727 under the will of Thomas Bourne, who bequeathed 8000*l.* for the erection and endowment of a school, the property of which is at present 9300*l.*, in New South Sea Annuities, yielding an annual interest of 279*l.* Under this charity twenty boys and ten girls are taught, clothed, and provided with books: their parents also receive 1*s.* a week each. They are received at the age of six and upwards, and remain till fourteen. The boys are taught English, writing, arithmetic, and the girls English and work, with writing in the last year of their stay. The master and mistress are at liberty to take any number of pay scholars: the former has a salary of 30*l.* and the latter of 15*l.* There is also an allowance of 2*l.* 10*s.* to each for firing.

(Chauncy's *Historical Antiquities of Hertfordshire*; Clutterbuck's *History and Antiquities of the County of Hertford*; Gough's *Camden's Britannia*; Brayley's 'Hertfordshire' in *the Beauties of England and Wales*; *Twenty-fifth Report of the Commissioners appointed to inquire concerning Charities*, &c.)

BERKSHIRE, or, as it is written by our older topographers, **BARKSHIRE**,[*] an English county in the midland district, included within the basin of the Thames, which forms, in its sinuous course from the neighbourhood of Lechlade in Gloucestershire to below Windsor, the northern boundary of the county, and separates it from the counties of Gloucester, Oxford, and Bucks, which lie on the other side of the river. The county of Wilts borders Berkshire on the west; the line of division between them, though irregular, has a general bearing N.N.W. and S.S.E. from the bank of the Thames to a few miles south of Hungerford. A line, running with tolerable regularity east and west, and coinciding in one part with the course of the river Auborne or Emborne, a feeder of the Kennet, and in another part with the course of the river Loddon, a feeder of the Thames, separates the county from Hampshire; and on the south-east a line running north-east and south-west separates it from Surrey.

The dimensions of the county are as follows:—length, east and west from the border of Wiltshire between Hungerford and Lambourn to Old Windsor on the Thames, forty-three miles, nearly; breadth, north and south from the bank of the Thames north-west of Oxford to the border of Hampshire, near Newbury, thirty-one miles, nearly. A line of about fifty-two miles may be drawn from the north-western extremity of the county to Old Windsor, but this line, from the irregularity of the northern boundary, will not lie entirely within the county. The area of the county is given at 758 square miles, equal to 485,120 acres, in the table appended to Arrowsmith's great map of England: or at 752 square miles, or 481,280 acres (or computing by the separate parishes, 472,270 acres), according to the population returns. The population in 1831 was 145,389.

Reading, the county town, lies thirty-eight miles in a straight line west by south of St. Paul's, London, or thirty-eight miles (measured from Hyde Park corner) by the road through Windsor Great Park, or thirty-nine through Maidenhead.

Surface, Rivers, and other natural features.—The principal high land in this county consists of a range of downs running W. by N. or W.N.W. from the banks of the Thames between Reading and Wallingford, into the northern part of Wiltshire. These hills, which, with the Marlborough Downs in Wiltshire and the Chilterns of Buckinghamshire, form one chalky range, rise in some parts to a considerable elevation. At Scutchamfly station, on the Cuckhamsley hills, a part of this range, a short distance south-east of Wantage, the height is 853 feet, and the White Horse Hill, which forms a part of the range, and is near the western border of the county, is 893 feet high. It may be observed of the whole chalk range of which these Berkshire hills form a part, that the northern or north-western declivity is more elevated and has a steeper slope than the other. This declivity is also marked by its being bare of wood and covered with a fine turf. These characters are preserved in that part which lies within Berkshire. The southern slope of the range, which descends to the vale watered by the Kennet, sinks for the most part gently, the chalk disappearing under reddish clay, sand, and gravel. The western part of the chalk range, which is the most elevated, is used for sheep-walks. These are of good quality, but not to be compared in extent with those of Wiltshire or Dorsetshire. The eastern part of the range is sufficiently covered with soil to become rable. The streams which rise on the northern declivity flow into the Thames; those which rise on the southern slope flow into the Kennet, which drains the waters of the south part of the county, or into a small stream which falls into the Thames a few miles above Reading. There are some hills which skirt the valley of the Thames in the northern part of the county, from the neighbourhood of Farringdon to below Oxford. These hills consist of shelly oolite, and calcareous and shelly sand with gritstone. (Greenough's *Geological Map of England*.) Between these hills and the chalk range, already described, is the fertile vale of White Horse, which is drained by the Ock. The vale of White Horse opens into the low lands which line the right bank of the Thames from Abingdon to a point a few miles above Wallingford, at which point the vale of Aylesbury, drained by the Thame, opens into the valley of the Thames on the left bank, just below Dorchester. There is some high land (463 feet high in one part) on the border of the county towards Bagshot in Surrey.

The south and east sides of Berkshire have a large proportion of woodland. Leland, in his *Itinerary*, vol. ii. fol. 2, speaks of a 'great warfeage of timbre and fier wood at the west ende of the (Maidenhead) bridge, and this wood,' he adds, 'cummith out of Barkshir, and the great woddis of the forest of Windelesore and the greate Frithe.' The predominant wood is hazel, intermixed with oak, ash, beech, and alder. The whole of the south part of the county was once occupied by the forest of Windsor, which extended in one direction into Buckinghamshire, and in another into Surrey as far as Chertsey, Cobham, and even Guildford, and reached westward as far as Hungerford along the vale of the Kennet. The vale of the Kennet was disforested by charter in the year 1226; and a considerable part of Windsor Forest is now in a state of cultivation, an act having passed for its inclosure in the year 1813. A great part of Bagshot Heath was within the boundaries of the forest. (Lysons's *Magna Britannia*.)

The principal river of Berkshire is the Thames, which however is not, in any part, included within the county, but forms, as already noticed, its northern border. The direct distance between the two points where the river first touches the county and where it finally leaves it is about fifty-two miles; but from the winding course of the stream, the distance measured along the bank is 105 to 110 miles. The navigation of the stream commences soon after it touches the border of Berkshire, viz. at St. John's Bridge, near Lechlade, where the river is 258 feet above the sea at low water; but the navigation, though much improved since the year 1795, is still tedious and uncertain, especially for large boats. The Thames produces barbel, trout, pike, and various other common fish, besides carp and tench, supposed to be brought into it by floods.

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[*] 'The county which we call Barkshire was antiently named by the Latin writers "Bercheria;" by the Saxons Beꞃꞃoc-ꞅcyꞃe (Berroc-scyre), which name Asser Menevensis derives from Berroc, a certain wood where grew plenty of box; others from an oak disbarked (which the word *berroke* means), at which, in critical times, the inhabitants used to meet to consult about their affairs.' (Gough's *Camden*.) In Leland's *Itinerary* (vol. ii. fol. 2) it is called *Barkshir*. The name, whatever be its original meaning, seems to be included in the appellation given by Cæsar (*Bell. Gall.* v. 21) to a tribe which inhabited this county—the Bi-broci; for bark and broc are in fact the same

The Kennet, which rises in Wiltshire, enters the county near Hungerford, having previously served for a short distance as a boundary between Wiltshire and Berkshire. From Hungerford the stream runs eastward (being much divided, and flowing in several channels: see Ordnance Maps, No. XII.) by Avington and Kentbury to Newbury, below which it receives the Lambourn, which rises in the chalk hills above the town of the same name. The Kennet then continues its course (being still frequently divided into several smaller streams which again unite) to the village of Aldermaston, and there bending to the north-east to Reading, falls into the Thames a little below that town. That part of its course which can be considered as belonging to this county is about thirty to thirty-two miles; the course of the Lambourn to its junction with the Kennet is about fifteen miles. Both of these rivers produce trout, pike, barbel, eels, crayfish, perch, chub, roach, and dace. The trouts of the Kennet are of great size; those of the Lambourn are of a paler colour and not so much esteemed. The Kennet is made navigable from Newbury to the Thames, a distance, by the stream, of about twenty miles. In the course of this navigation there are twenty-one locks; the highest point is 264 feet above the level of the sea at low water; the fall from thence to Reading is about 134 feet.

The Loddon rises in Hampshire, and for some distance separates that county from Berkshire, flowing towards the W.N.W. Near the village of Swallowfield it turns to the N.N.E. and flows to Hurst Park, receiving by the way the Emme Brook. From Hurst Park it turns to the N.W. and flows into the Thames between Reading and Henley. Its whole length is nearly thirty miles, of which about six miles are along the border of Berkshire and twelve within that county. Above its outfall its waters divide and flow into the Thames by several channels. Leland, in his *Itinerary*, observes that he crossed its different arms by four bridges.

The Ock rises in the western part of the county, runs a general E.N.E. course, and receiving many tributaries by the way, falls into the Thames near Abingdon. Its whole course is about twenty miles. The fish in it are pike, esteemed remarkably fine, perch, gudgeon, roach, dace, and crayfish.

The Auburn, or Emborne, rises in the south-western corner of the county, and flowing eastward divides it from Hampshire. Near Brimpton it turns to the north, and falls into the Kennet after a course of about eighteen miles. The other streams are too small to claim particular notice.

Besides the navigation of the Thames and the Kennet, Berkshire has two canals, viz. the Wilts and Berks Canal, and the Kennet and Avon Canal. The former commences in the river Thames just below Abingdon, and is carried through the vale of White Horse past Wantage into Wiltshire: crossing this county near Swindon, Wootton Bassett, Calne, Chippenham, and Melksham, it joins the Kennet and Avon Canal not far from the last-mentioned town. The height of the Thames at the commencement of this canal is 180 feet above the sea at low water, and the canal rises in its course through this county till it enters Wiltshire, where it attains its summit level of 345 feet. It supplies with fuel the district through which it passes, and enables the agriculturist to send his corn and other produce to market. The Kennet and Avon Canal commences at Newbury, forming a continuation of the River Kennet Navigation, and passes up the Vale of Kennet by Hungerford and Great Bedwin to Crofton in Wilts, near which its summit level begins. From this level it continues its course by Devizes, Semington (a village at which it is joined by the Wilts and Berks Canal), Trowbridge, and Bradford to Bath. The elevation of the highest point of the Kennet navigation is 264 feet, and the summit level of the Kennet and Avon Canal, at Crofton tunnel, is 210 feet more. A little way above Hungerford the canal is carried over the Kennet by an aqueduct of three arches.

The principal roads which pass through Berkshire are those from London to Bath and Oxford. Both these enter the county at Maidenhead, a little beyond which they separate, the Oxford road running nearly due west to Henley, just before entering which it leaves the county, and the Bath road running south-west to Reading. There are two other roads from London to Reading, both of which pass through Egham in Surrey, and, separating there, run nearly parallel to each other, until they reunite a few miles before they reach Reading. From this town the Bath road passes through Newbury and Hungerford, just after which it enters Wiltshire. The principal other roads are one from London to Cirencester, which, branching off from the Oxford road near Nettlebed in Oxfordshire, runs through Wallingford and Wantage: another road to Cirencester, which, branching off from the Oxford road at Dorchester (Oxfordshire), runs through Abingdon, and uniting with the first-mentioned road at Faringdon, crosses the Thames at St. John's Bridge, near Lechlade, into Gloucestershire: one from Oxford to Kingsclere and Whitchurch (Hants), and so to Winchester and Southampton, which entering Berkshire near Wallingford, runs through it in a southern direction into Hampshire, without passing through any market-town except Wallingford: one from Oxford by Abingdon and East Ilsley to Newbury, from which town two branches run, one to Andover (Hants) and the other to Whitchurch (Hants); two from Oxford to Hungerford, one by Wantage, and one by Abingdon; one from Lambourn to Newbury, and one from Reading to Basingstoke in Hampshire.

The turnpike roads in this county are good, as are also the private roads in the south-eastern part, especially about Reading. The private roads in the Vale of White Horse are deep and miry, and in winter almost impassable. (Lysons's *Magna Britannia*.)

Climate, Soil, Agriculture.—The climate of Berkshire is one of the most healthy in England. The chalky hills in the western part of the county are remarkable for the invigorating and bracing qualities of the air. The vales being milder may perhaps suit delicate constitutions better, and having pure streams running through them, which make the air circulate and purify it, they are considered as healthy as the hills. Fevers and epidemic diseases are very rare.

The soil, as may be expected in a country of such extent and so irregular a shape, is extremely varied. The principal hills are composed of chalk; the valleys of different sorts of loam, in which clay predominates, with gravel and sand upon it rising into small elevations. Along the rivers there are alluvial deposits. The whole county seems to lie over chalk or lime-stone. Windsor Castle, at one extremity, stands on a solitary mass of chalk surrounded by stiff clay. This clay, in some places, has a depth of 300 feet over the chalk, as was found in boring for water near Winkfield plain. The chalk rises to the surface near Maidenhead and Marlow. The chalk, which dips so deep under Windsor Forest, appears again in Hampshire. The clay of the forest is a compact blue clay, of the same nature as that which is usually called the London clay, and in which nearly the whole bed of the Thames lies, from near Reading to the sea.

Over this clay lies the poor sand and loam impregnated with iron, known by the name of Bagshot heath land, which extends into Hampshire and Surrey; and also the richer alluvial soils in the valleys, and along the banks of the Thames and the Kennet. Under the vale of White Horse, where the richest soils occur, the chalk runs into a harder lime-stone of a blue colour, and a free-stone or oolite, which composes the Cotswold Hills in Gloucestershire. (See Mavor's *Survey of Berkshire*, Appendix vi.)

In the vale of White Horse are some of the most fertile lands in England. The western part of the vale is chiefly covered with rich pastures, the soil being a good loam on a sound and dry subsoil. Along the bottom of the White Horse hills lies the rich corn land, for which the vale is renowned, intermixed with gravel and sandy loams of an inferior quality, and some very stiff clays. This land is chiefly arable, and is called white land, from the admixture of finely divided calcareous earth in its composition. It has the appearance of an alluvial deposit, enriched by the finer parts of the chalk washed down from the neighbouring hills. Along the Thames is a belt of rich meadows, extending in some places only to a very short distance from the river, and no where above two miles. These meadows have not been improved by irrigation so much as they might be, and are chiefly fertilized by the winter and spring floods. The next district in importance, in an agricultural point of view, is the vale of Kennet, extending along the river of that name, and on the south of the hills above mentioned, from Hungerford to Reading, a distance of about twenty-five miles. The soil of this vale is not so generally fertile as that of White Horse, which is called 'The Vale,' by way of pre-eminence; but its soil is well adapted to the growth of corn; and the inferiority in natural fertility is compensated by superior care in the cultivation. The markets of Newbury and Reading not only supply the less fertile districts and the dairy counties with corn, but likewise give employment to numerous mills, whence the grain, in the shape of flour, is sent in considerable quantities to the London market.

The soil in this vale is chiefly gravelly, covered with a layer of more or less depth of loam, some of which is of a reddish colour, and may vie in fertility with the white land in the vale of White Horse. On the south of the Kennet are some compact clays, in which oaks thrive, and where good crops of wheat and beans are raised with careful culture. South of Newbury, towards the boundary of the county, the soil becomes less productive; till it assumes the character of the brown heath, which indicates the barren ferruginous sand of Bagshot. Along the river Kennet, from Hungerford to Reading, there is a valuable tract of water-meadows, which in some places are capable of considerable improvement by a better distribution and regulation of the waters of the river. These meadows produce much herbage, which is sometimes made into hay, and at other times depastured with sheep and cattle, but the aftermath is not found so good for sheep, being apt to rot them. They are let for spring feed at thirty or forty shillings per acre, the letter having the privilege of folding the sheep at night, which is an advantage equal to 10*s.* more. This is from Lady-day to old May-day; after which they will still produce a ton and a half, or two tons of hay per acre when mown, or the grass may be cut green for cart-horses, which is thought more profitable to a certain extent.

Under the meadows, along part of the Kennet near Newbury, there is a species of peat, which is extensively reduced to ashes by burning, and applied as a top-dressing to clover and artificial grasses. It lies in some places only eighteen inches below the surface, and in others four or five feet. The stratum varies in thickness from one to eight or nine feet. The bottom on which it rests is a gravelly loam with an uneven surface. The true peat is of a compact nature, and is composed almost entirely of vegetable matter. In it are found the remains of trees partly decomposed, and surrounded by a tough mass of decomposed aquatic plants. This peat is dug out, with a long and narrow spade made for the purpose, in oblong pieces, which are laid to dry, and then placed in the form of a dome, and set on fire from below. As the peat begins to burn, more is added, so as to keep up a smothered fire; and in proportion as the heap increases, and the fire becomes more powerful, moister pieces are put on to prevent its breaking out. Thus a large mass of slowly burning peat is formed, which burns for a month or six weeks before the whole is properly converted into ashes. This heap is often three or four yards high, and fifteen or twenty yards in circumference. As soon as the ashes are cooled, the whole is riddled to separate the unburnt clods; and the ashes are used immediately, or stored under cover till they are wanted. The quantity usually put on an acre of young clover is fifteen or twenty bushels: the price at Newbury is fourpence a bushel.

These ashes have been analyzed by Sir H. Davy, and found to contain,

Oxide of iron	48
Gypsum	32
Muriate and sulphate of potash .	20
	100

The principal cause of their good effects on green crops and clover-leys is, most probably, the quantity of gypsum which they contain. (See GYPSUM.) Between the vale of White Horse and that of the Kennet extends a district of inferior land, partly consisting of chalky hills covered with sheep-walks, and of dales of moderate fertility. The soil is principally calcareous, with variations of clay and gravel.

The chalky hills on the west side of the Thames are separated from the hills in the south-east angle of Oxfordshire, by a narrow opening near Goring, through which the river flows: if this opening, at any time, did not exist, the country above must have had considerable lakes in it, formed by the pent-up waters of the Thames and tributary streams. This may account for the rich alluvial soils found in the vale of White Horse. On the hills which border the Thames, there are extensive views over the rich vale of White Horse, and into Oxfordshire; and, in general, the aspect of the country from any considerable hill is that of great richness and variety. No county in England, except Middlesex and the part of Surrey nearest to London, contains so many villas and gentlemen's residences.

The eastern part of the country, or the Windsor Forest district, though less fertile, is not less inviting as to situation. The hills from Egham to Bray are covered with very fine old and young plantations, and form the picturesque scenery of Windsor Great Park. This forms a contrast with the open heath extending to Bagshot, which was divided and inclosed in the year 1813, when the forestal rights were abolished by act of parliament. These rights, if claimed to their full extent, would have been extremely burdensome, and not readily submitted to in these times. While they existed, they had a visible influence on the agriculture of the district, and greatly retarded its progress, in spite of the example of George III.

The parishes contained within the Forest of Windsor were Old Windsor, New Windsor, Winkfield, Sunninghill, Binfield, Easthampstead, Sandhurst, Finchampstead, Barkham, Wokingham, Arborfield, and Swallowfield; and parts of Clewer, Bray, and Hurst. The open uninclosed forest in all these parishes amounted to about 24,000 acres, very little of which would repay the expense of cultivation; and much of it remains now in its original state, although divided and inclosed. The allotments given to the crown, amounting to above one-fourth of the whole, have been mostly planted with trees, where they were not already in woods.

The soil in the forest district is extremely various: along the Thames, in the parishes of Old and New Windsor, Clewer, and Bray, there are excellent meadows, and some very good arable land, consisting of loam and gravel. To the south, along the hills, which extend at the distance of two or three miles from the river, the soil is a very tenacious clay, better adapted for grass than for corn. The cultivation of it as arable land is laborious and expensive, from the necessity of bringing chalk from a great distance to correct its cold nature, and neutralize the large portion of iron and saline substances which it contains. The waters found in the land springs, and within a certain depth in this soil, are more or less impregnated with sulphates and muriates of soda and magnesia; so that in many places mineral wells have been discovered, and occasionally much frequented by invalids for their purgative qualities. Of these there are several in Windsor Great Park, St. Leonard's Hill, Winkfield Plain, where a regular pump-room has been fitted up, and in Winkfield Park; this last was formerly in some repute. Beyond these clay hills, as we go south from the river, the soil becomes lighter, and gradually changes into a poor light loam, then a sand and gravel, which diminishes in fertility till it becomes the poor thin soil of Bagshot Heath, in which the impregnation of carbonate of iron is so strong as to deposit the iron in the brooks in the form of a rusty powder.

The old inclosures in the forest were chiefly pastures. The arable land was confined to common fields, which were of very inferior value, owing to the right of pasture over them after a certain time of the year; and while the pastures let for nearly the same rent a century ago as they do now, the arable common land let for only one-fourth of its present value; but the pastures enabled the occupier to keep sheep and cattle on the extensive commons, on which was his chief reliance for profit. Since the inclosure of the forest, arable land has improved, and pastures have decreased in value.

The general state of agriculture in Berkshire is neither of the most improved kind, nor yet to be greatly found fault with. The number of rich proprietors who hold land to some extent in their own hands is considerable. They employ intelligent bailiffs, and improved modes of cultivation are readily tried by them. The most perfect machines and implements may be found on their farms, and everything new finds some person ready to give it a trial; but there are many obstacles to their general adoption. Old methods keep a certain hold of practical men, and it is very fortunate that it is so, for no new method should be generally adopted till long experience has proved its utility. The two extremes, of an obstinate adherence to a decidedly bad system, and an incautious adoption of new inventions, are equally unreasonable. The system generally adopted throughout the county by intelligent farmers is only a modification of the antient triennial rotations. The basis is a clean fallow, for which turnips are substituted on the light soils: then two or three crops of corn, with an alternation of clover, tares, or beans between them, which are considered as less exhausting. The nature of the crops and the recurrence of the fallows depend on the nature of the land, on the seasons, and also on the care with which the first fallow has been cleaned, and the crops have been weeded or hoed. It is the appearance of weeds that gives notice of the necessity of a fallow. A good rotation strictly adhered to would be better for general adoption; and a more extensive cultivation of artificial grasses would keep more live stock, and make more manure.' In the rich soils of the Vale great crops of corn are frequently obtained with little trouble, and this always makes careless farmers. They know the advantage of manure, and will spare no expense to purchase it, but the real secret of agriculture is to make it at home and at the least expense, which can only be done by means of live stock, and raising food for cattle.

There are in Berkshire a great many small proprietors, or yeomen, who cultivate their own farms, consisting of forty, fifty, or eighty acres. They live frugally, and the times do not much affect them; but they have no inclination to try new schemes; the old methods satisfy them, and if they can live and pay their way they are contented.

The old implements of husbandry have been much improved of late years. The heavy Berkshire plough, drawn by four or five horses in a line, has given place to the lighter Scotch and Norfolk ploughs with two horses abreast, or in very wet and stiff soils with three in a line; more are seldom used, except to break up grass land, or when the ploughing has been deferred till the ground is very hard. Improved agricultural instruments are manufactured at Newbury and at Reading. Drilling machines on the most improved principle, and on Cook's plan, are made at Hook in Hampshire, and pretty generally dispersed through Berkshire. The introduction of these and other improved instruments has been much encouraged by the example of King George III. and the late Duke of Gloucester, whose farming establishment at Rapleys, near Bagshot Park, was on the most improved principles. Drilling the seed is becoming more general than it used to be: and several professional drillmen find it a profitable employment of a small capital to purchase the most improved machines, with which they drill the seed for the smaller farmers, who cannot afford such expensive implements. The farmer finds the horses and a man to drive them, and sends the drill to its next destination when his corn is drilled. The price paid for the use of the drilling machine is from 1*s.* 6*d.* to 2*s.* per acre, with food for the drillman, who is the proprietor of the drill, or his servant. They drill about ten or twelve acres in a day, with two horses and two men. This division of labour, which is a certain sign of improvement, is only found in the best cultivated districts, as in Essex, Suffolk, and Norfolk, where there are still many small farms.

Threshing machines were common in many parts of the county, both fixed and moveable; but during the disturbances in 1831 many of them were destroyed, and the corn is now chiefly threshed by hand, there being always a superabundance of agricultural labourers.

In noticing the agriculture of Berkshire we must not pass over the two farms in Windsor Great Park, established by King George III., one on a poor sandy soil, conducted on the Norfolk system, and another on a stiff clay, called the Flemish Farm, but by no means cultivated on the Flemish model. The greatest variety of improved instruments was introduced, and many experiments were made. Both these farms were well worth the attention of agriculturists; but the circumstance of their being supported by what was thought an inexhaustible purse rendered them nearly useless as models for imitation. They continue to be cultivated, but attract little attention.

Some extremely fine cattle are bred and kept in the Home Park at Windsor, chiefly of the improved short-horned breed; and the cows which graze close to the royal residence are certainly worthy of the privileged pasture in which they range, and the majestic trees which shelter them.

The farm of his late Royal Highness the Duke of Gloucester, at Rapleys, near Bagshot Park, deserves particular notice. This farm originally consisted of about thirty acres of poor land, forming, however, a kind of oasis in the midst of brown heath which surrounded it on all sides. When the forest was inclosed, the duke purchased a large tract of heath land adjoining to this farm and Bagshot Park. He gradually extended his purchases to Swinley Park, of which he took a lease of the commissioners of woods and forests, and in the course of less than twenty years he converted a bare and barren tract of land into a productive farm, interspersed with thriving plantations. This was effected chiefly by employing the superabundant labour of the neighbouring parishes. The whole was superintended by an active native of Scotland, Mr. Burness, the duke's bailiff, who since the duke's death has been appointed bailiff to some of the Duke of Bedford's farms at Woburn. A threshing machine, moved by an artificial stream of water, on the most improved construction, was erected on the premises, with a mill to grind meal, and one to bruise bones for manure. Mr. Loudon has given a description and drawing of this machine in the Appendix to his last edition of the *Encyclopædia of Agriculture*, and asserts it to be the most complete in the kingdom.

The size of the farms in Berkshire varies considerably in the chalky districts they are large—some containing a thousand acres; but in the richer soils they are mostly from one hundred to four hundred acres: in the forest district they are in general of small extent. Arable land lets from 10*s.*, and even less, to 2*l.* per acre: the average may be about 25*s.*; upland meadows from 1*l.* to 2*l.*, and along the rivers 2*l.* to 3*l.*; irrigated meadows 4*l.* to 5*l.*

Gardens.—Near Reading there are considerable garden grounds, the soil being deep and good, and the produce coming earlier to maturity than in any other part of the county. The onions, and especially the asparagus of Reading, are remarkably fine, and in great demand in the season. Orchards are not very numerous, and fewer than they were at one time, when cider was a more common beverage of the farmer. The apples which grow in the Vale, where there are some good orchards, are mostly sent to London. About Wantage are some cherry orchards, the produce of which is great in good years, but it is a very precarious crop.

Woods and Coppice.—Woods and coppice are scattered over the county, and add to the diversity, which is a beautiful feature in its landscapes as viewed from eminences. Considerable quantities of timber are annually felled, and during the war the finest trees were readily purchased for the dock-yards. The high prices then given have considerably diminished the number of old oaks, but very fine trees may still be found in some of the gentlemen's parks, and occasionally in the hedge-rows, which are still tolerably furnished with timber, of which elm forms a considerable portion. The Forest of Windsor, with the exception of the neighbourhood of the parks, had but few trees on the wastes, and these more picturesque in appearance from their age than valuable as timber. Some of the oldest oaks in Cranbourn Wood, in the parishes of Winkfield and Clewer, are mere hollow trunks, with a few picturesque branches.

The coppices in general are valuable; and where water carriage is near, which is the case in almost every part of the county, the produce is sent to London in the shape of hoops, broomsticks, and other rough manufactures. They are usually cut every ten years, and when well managed produce from 10*l.* to 15*l.* per acre, at every cutting.

Osiers.—Along the Thames, and in the low islands which are frequently covered with water, there are numerous osier beds, which are cut every year to make baskets, and are considered as a very valuable property.

Cattle.—There is no peculiar breed of cattle indigenous in Berkshire, and those generally met with are imported from Devonshire, Herefordshire, and Yorkshire. The Glamorganshire cows are in considerable repute in some districts, but the breeds are much mixed and crossed, and not always with the greatest attention or judgment. Alderney cows, which are annually imported, are very common for the supply of butter and cream in gentlemen's families. Some very good cows have been produced by crosses of Alderneys with larger breeds. Oxen are not generally used in agriculture, although a few teams are kept on some large farms, and the work of the king's Norfolk farm in Windsor Park was at one time entirely done by oxen. They are still employed in carting, rolling, and drawing timber in the park, where the sod being soft for their feet, they can work without being shod. They are worked four at a time, and only five days in the week, and in this manner stand their work well.

A considerable number of horses are bred in Berkshire, chiefly of the cart kind; and many colts are brought young from Northamptonshire, and kept for two or three years with gentle work. They are then sent to London as dray horses, and in general obtain very good prices. In this manner horses used in husbandry, instead of losing in value, are often a source of greater profit than oxen worked two or three years, and then fatted off.

No great quantity of fat cattle is sent from Berkshire to London. In the eastern part of the county a good many calves are suckled, and are found on the whole more profitable than butter or cheese, and attended with much less trouble: but the chief advantage of calves is the addition which they make to the dung of the yard, when they have a liberal allowance of straw often renewed. This also constitutes the chief profit of keeping pigs.

Pigs.—The breed of pigs in Berkshire is one of the best in England. They are not of a very large size, although many fattened at two years old weigh twenty score when killed, and some even more. The most common weight is from twelve to fifteen score: the bone is small, and they fatten at an early age and on little food—two important qualities. The true Berkshire breed is black with white spots, but some are quite white: their snouts are short, jowls thick, and their ears stand up. A mixed breed, produced by crossing the Berkshire with the Chinese and Neapolitan breeds, possesses improved qualities, although rather susceptible of cold from being nearly without hair; but they are superior to most breeds for getting rapidly fat, and keeping in excellent condition on pasture, with very little additional food. G. H. Crutchley, Esq. of Sunninghill Park, has a choice breed of this kind; and most of the cottagers' pigs in the Forest district are of a superior description. Bacon is the principal animal food of the labourers, and they are good judges of its qualities.

Sheep.—The Berkshire sheep called the *not* was a large polled sheep, with coarse wool, useful for the fold on cold clay soils, but coarse in the carcase. It is now almost superseded by an improved breed produced by crosses from the old sheep and the Leicesters, and by the South Down, which are now the favourite breeds. Some of the Cotswold sheep, crossed with the Leicester, produce a large sheep, which gets very fat, and carries a heavy fleece of long wool: some of these were lately purchased to send to Belgium to improve the sheep in that country. Merinos were introduced by George III., who had a flock from Spain, and were at first in great request on account of the fineness of their wool; but they have not proved a profitable stock, owing perhaps to want of proper management, and chiefly because they did not produce so good carcasses for the butcher, which is now the chief profit of the sheep. In Saxony the wool is the principal object; and so much attention has been paid to the Spanish flocks transplanted into that country, that their wool exceeds the original Spanish wool in fineness. Before the inclosure of Windsor Forest there was a breed of small ragged-looking sheep, with a light fleece of tolerably good short wool, called the heath sheep, which, when fatted at three or four years old, produced the fine-flavoured Bagshot mutton much prized by gourmands. These sheep were bred and kept in the wastes of the forest, and sent annually in large flocks into Buckinghamshire to be folded on the fallows. Not being well attended to, many of them died, and sometimes, in a wet spring, whole flocks were swept off by the rot; they cost the proprietor little, and produced in general but small profit: they may still be seen, although in diminished numbers, on the heaths of Surrey and Hampshire which are still uninclosed.

We cannot close this brief account of the Berkshire agriculture without noticing the farm at Shalburn, called Prosperous Farm, which was formerly that of the celebrated Jethro Tull. The soil is a stiff chalky clay, such as must be greatly benefited by being pulverized and stirred; and from this circumstance may be deduced Tull's system of horse-hoeing, which at one time was thought so great a discovery in agriculture as to be named, by way of pre-eminence, the 'new husbandry.' But the erroneous theory which he adopted with respect to the food of plants, and his consequent neglect of manure and change of crops, led him and his disciples into great mistakes, and ultimately caused his ruin. (See Tull, *On Horse-hoeing Husbandry.*) It is curious that although drilling, which was first introduced by Tull, is practised pretty generally in the neighbourhood, it is not so now on Prosperous Farm.

There are numerous fairs and markets in the county of Berks, some of which are very antient, and others of later institution. The fairs at Reading are noted, especially that for horses on the 25th of July, and for cheese on the 21st of September. Ilsley sheep fairs are some of the largest after the great fairs on the Wiltshire Downs: one is held on the 26th March, but the largest, called Lamb Fair, is on the 26th of August. On the market days, which are on Wednesdays, a sheep fair is held every fortnight, from Easter till shearing time, where large quantities of sheep are penned. There are fairs also at Abingdon, Newbury, and all the provincial towns and villages, as the following list will show:—

Abingdon, first Monday in Lent, May 6, June 20, August 5, September 19, Monday before Old Michaelmas, December 11; Arborfield, October 5: Aldermaston, May 6, July 7, October 11; Bracknell, April 25, August 22, October 1; East Ilsley, March 26, Wednesday in Easter week, and every other Wednesday till Whit-Wednesday, August 26, first Wednesday after September 29, Wednesday after October 17, November 12; Farringdon, February 15, Whit-Tuesday, October 29; Hungerford, last Wednesday in April, August 10; Lambourn, May 12, October 2, December 4; Mortimer, April 27, Nov. 6; Maidenhead, Whit-Wednesday, September 29, November 30; Newbury, Holy Thursday, July 5, September 4, October 14, November 8; Oakingham, April 23, June 11, October 10, November 2; Reading, February 2, May 1, July 25, September 21; Thatcham, second Tuesday after Easter Week, first Tuesday after September 29; Wallingford, June 24, September 29, December 17; Wantage, first Saturday in March and May, July 18, October 10 and 17; Windsor, Easter Tuesday, July 5, October 24.

Divisions, Towns, &c.—When the Domesday survey was made, Berkshire was divided into twenty-two hundreds. Wallingford and Windsor were assessed separately. The hundreds have since been reduced to twenty, of which eleven retain their antient names under a somewhat modernized form. We give the antient hundreds, placing in a line with them the modern hundreds with which they for the most part coincide, and also the part of the county in which they are situated. N. north; S. south, &c.; C. central.

Antient.	Modern.
Benes, or Beners . . .	Barnesh, or Beynhurst, E.
Blitberie (Blewbury) . .	Moreton, N.E.
Borchedeberie, or Borcheldeberie (Bucklebury) . .	Faircross, C. and S., and Reading, N.E.
Bray	Bray, E.
Cerledone	Charlton, S., Sonning, or Sunning, E., Wargrave, E.
Cheneteberie, Eglei, united . .	Kentbury-Eagle, C. and S.W.
Eletesford, Helitesford, or Hesliteford	Moreton, N.E., and Cookham, S.E.
Gamesfel	Ganfield, N.W.
Hilleslau	Shrivenham, N.W.
Hornimere	Horner, N.
Lamborne, or Lambourn .	Lambourn, W.
Merceham (Marcham) . .	Ock, N. and N.E.
Nachededorne	Compton, C., and Faircross C. and S.
Radinges, or Redinges .	Reading and Theale, N.E.
Riplesmere	Riplesmere and Wargrave, E.
Roeberg	Faircross, C. and S.
Seriveham, or Shrivenham	Shrivenham, N.W.
Sudtone (Sutton) . . .	Ock, or Oke, N. and N.E.
Taccham (Thatcham) . .	Faircross, C. and S., and Reading, N.E.
Wanating, or Wanting .	Wantage, C
Wifol	Faringdon, N.W., and Shrivenham, E.

Camden gives the number of parishes in the county at 140; Lysons gives them at 148. By a comparison of the list contained in the population returns with the best maps, the number may be thus stated:—Parishes wholly in Berks, 142; parishes partly in other counties, but which have either the church or the principal group of houses in Berkshire, and may be therefore reckoned in that county, 9; parishes partly included in Berks, but chiefly in other counties, 5; total, 156. The parishes which, though partly in other counties, may be most properly reckoned in Berkshire, are Sunning, Langford, and Shilton (partly in Oxfordshire), and Coleshill, Hungerford, Hurst (parochial chapelry), Shalbourn, Shinfield, and Wokingham (partly in Wilts). The parishes which rather belong to other counties are Great Barrington (chiefly in Gloucestershire), St. Aldate's (chiefly in the city of Oxford), Strathfieldsay (chiefly in Hants), and Inglesham and Swallowfield (chiefly in Wilts).

There are twelve market-towns: Abingdon, Faringdon, Hungerford, East Ilsley, Lambourn, Maidenhead, Newbury, Reading, Wallingford, Wantage, Windsor, and Wokingham. Of these, Reading and Abingdon are the assize-towns, and the latter is the chief place of county election.

Reading is on the Kennet, chiefly on the left bank, about a mile or a mile and a half before it flows into the Thames. It is a parliamentary borough, sending two members, and had a population in 1831 of 15,595.

Abingdon, on the Gloucester road, fifty-six miles from London, is on the right bank of the Thames, just at the mouth of the Ock, and at the entrance into the Thames of the Wilts and Berks canal. Its population in 1831 was 5259. It returns one member to parliament.

Windsor, properly New Windsor, twenty-two miles from London by Colnbrook, on the right bank of the Thames, contains a noble castle, a residence of the kings of England. It is a parliamentary borough, returning two members, and had in 1831 a population of 5650, including the inhabitants of the castle and the lower ward, or 7103 including the parish of Old Windsor.*

Wallingford, also a parliamentary borough, returning one member, forty-six miles from London, had in 1831 a population of 2563;† but the limits assigned to the borough by the Boundary Act include a population of probably more than double that number. [See ABINGDON, READING, WALLINGFORD, WINDSOR.]

Next to the above places, the most important is Newbury, on the Bath road, seventeen miles from Reading, and fifty-six miles from London. It is on the river Kennet, at the point where the navigation of that river unites with the Kennet and Avon canal, and had in 1831 a population of 5959, or including Sandleford priory, which is in the parish, 5977.

Great Faringdon, in the north-west part of the county, sixty-eight miles from London by Wallingford and Wantage, or between seventy and seventy-one by Abingdon, had in 1831 a population of 3033 for the whole parish. Wantage, sixty miles from London by Wallingford, contained in the whole parish, in 1831, 3282 inhabitants. [See FARINGDON, NEWBURY, WANTAGE.]

The remaining five towns, Hungerford, East Ilsley, Lambourn, Maidenhead, and Wokingham being too small to require separate articles, may be mentioned more at length here.

Hungerford is in the S.W. part of the county, on the Bath road, eight or nine miles from Newbury, above twenty-five from Reading, and sixty-four or sixty-five from London. It is upon the river Kennet (which, however, is not navigable), and upon the Kennet and Avon Canal. This town bore in antient times the name of *Ingleford Charmam* (or *Charnam*) *Street*, which Mr. Gough (in his Additions to Camden) thinks may be a corruption of the Ford of the Angles on Herman Street, the antient Roman road. But the Messrs. Lysons doubt whether the name Ingleford applied to more than the site of the manor of Hungerford-Ingleford, which is in the parish, and observe that the name Hungerford, as now spelt, occurs in a record as antient as A.D. 1204. The name Charnam Street is still preserved by one of the avenues to the town, and by one of the tithings into which the parish is divided. The town consists chiefly of one long street, in the centre of which are the market-house and shambles, with a room over them in which the town business is transacted. The church, which is in the western quarter of the town, was erected in 1814, in the place of an antient structure, which appeared to have been built at different dates. In the former church were several memorials of the antient family of the Hungerfords. The living is a vicarage, in the patronage of the dean and chapter of Windsor, and in the peculiar jurisdiction of the dean of Salisbury; the net income of the vicarage is stated at 449*l*. in the *Ecclesiastical Revenues' Report*, 1835. Near the church is the free grammar-school. The Kennet is here divided into two streams, one of which passes through the town, the other close by it on the north side. The latter is crossed by a bridge at the entrance of the town from Newbury. There appears to be no manufacture in Hungerford of any importance. The market, which is on Wednesday, has been held from time immemorial, and is mentioned as an established market A.D. 1297. There are three fairs. The population of the whole parish, which contains 4450 acres, and extends into Wiltshire, was, in 1831, 2715; but a considerable portion of this must be rural population. The town is governed by a constable chosen annually by the inhabitants: the other municipal officers are bailiff, steward, town-clerk, twelve feoffees and burgesses, &c. Hungerford was the birth-place of Dr. Samuel Chandler, an eminent dissenting minister of the last century. There was formerly an hospital of St. John the Baptist in this town, but its site is not known.

East Ilsley (antiently Huldesley or Hildesley) lies between Newbury and Abingdon, nine or ten miles from the former, and eleven from the latter. It is fifty-four miles from London through Reading. It is situated amidst the downs formed by that range of chalk hills which has been described above as crossing the county: on these downs a great number of sheep are fed. Although East Ilsley is a very small place, of not more than 738 inhabitants (in 1831), its sheep-market, which commences on the Wednesday in Easter week, and is held every alternate Wednesday till Whitsuntide, is supposed to be one of the largest in England next to that of the metropolis. The sheep are purchased by the Hertfordshire and Buckinghamshire farmers, and fattened for the London market. There is a market on Wednesday throughout the year, but the great sheep-market is for a limited season, as mentioned above: there are also two fairs. The living is a rectory in the deanery of Newbury, of the net annual value, according to the *Ecclesiastical Revenues' Report* (1835), of 645*l*.

Lambourn, or Chipping Lambourn, is situated upon the little river of that name, which falls into the Kennet at Newbury. Lambourn is near the edge of the downs mentioned in the account of East Ilsley, eleven miles from that town, and sixty-five from London. In the market-place is a tall plain pillar, with an ornamented capital, on an ascent of steps. The church is a handsome Gothic structure in the form of a cross, having two chantry chapels on the south side: and near the churchyard is an hospital for ten poor men, founded by some of the family of Isbury or Estbury. The living is a vicarage in the gift of the dean and chapter of St. Paul's, London, of the average net income of 104*l* The market is of very antient date, but has much declined of late years: it is held on Fridays. There are three fairs. The parish is very extensive, containing nearly 15,000 acres: it is divided into one township (that of Chipping Lambourn) and three tithings. The population of the township of Chipping Lambourn in 1831 was 1166: that of the whole parish 2386. At Upper Lambourn, an adjacent hamlet, was formerly a free chapel, now destroyed.

Maidenhead is a small but neat town, a little way from the Thames on the Bath road, twenty-six miles from London. The town was formerly called South Ealington, and the name Maidenhead was said to have been given to it from the veneration paid to the head of one of the eleven thousand British virgins who, according to an antient but fabulous legend, were martyred by Attila king of the Huns: but as in the most antient records it is written Maidenhithe or Maydenhythe*, it is more likely that the name was first given to the spot where Maidenhead bridge now crosses the Thames, where was formerly a great wharfage of timber and firewood. There has been a bridge at this spot from an early date, certainly from the thirteenth century, and the erection of it diverted the course of the great western road, which appears before that time to have crossed the river about two miles higher at Babham Ferry, near Cookham. From this change of the road the town of Maiden head took its rise, and it soon outstripped Bray, which may be considered its mother-town, and in which parish it partly stands.

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* Old Windsor neither was nor is included in the parliamentary borough.

† So in the 'Abstract of the Answers and Returns' under the Population Act of 1831. In the 'Accounts and Papers' for that session of Parliament (Parl. Papers for 1831, vol. xviii.) it is given at 2467

* Hithe is a word of Saxon origin (hæh, a ditch or trench), and is said to signify a small port or quay; thus we have Lamb-hithe or Lambeth, Queen-hithe, Hythe on the Kent coast, &c.

Maidenhead consists of one long paved street. It has a chapel, erected of late years on the site of a former one taken down as being too small. The bridge consists of seven semicircular arches of stone, and three smaller arches of brick at each end. There is an almshouse between the bridge and the town for eight poor men and their wives. The chief trade of the place is in meal, malt, and timber; and it is a great thoroughfare, in consequence of which there are several inns. The market is on Wednesday, and is a considerable mart for corn. There are three fairs. Maidenhead has a corporation, consisting of a mayor, high steward, steward or recorder, and eleven burgesses, two of whom are annually chosen bridge-masters. The mayor, high steward, steward, and the mayor of the preceding year are justices of the peace; and the mayor presides in a court for the recovery of small debts, which is held every three weeks. The corporation have the power of making bye-laws, and there is a jail for debtors and felons. The corporation revenues consist chiefly of the tolls of the markets and the bridge. The town is in the parishes of Cookham and Bray; the chapel is in the former. The minister is appointed by the mayor and bridge-masters, and is said to be exempt from episcopal jurisdiction. The population, owing to the town not forming a distinct parish, cannot be given. It is probably about 1500. There are a National school and a Sunday school, and three dissenting places of worship.

Wokingham, or Oakingham, is within the precincts of Windsor Forest, and on one of the roads from London to Reading, thirty-one miles and a half from London, and seven from Reading. That part of the parish in which the town stands is in Berkshire, the other part of the parish, together with the church, is in an insulated portion of Wiltshire. The town consists of several streets, which meet in a spacious area, containing the market-house, an antient building framed with timber, open at the bottom, and having above a room for the transaction of public business. The church is large and handsome; the houses in the town are chiefly of brick. In Camden's time the woollen manufacture was carried on here, but now the malting and meal trades, throwing silk, and making shoes and gauze, furnish the chief occupations of the inhabitants. The market is held on Tuesday, and is well supplied with poultry, which the higglers purchase for the London market. There are three antient fairs, now inconsiderable; two additional ones were attempted to be established about 1780, but did not succeed; one of them, at Lady Day, has been given up, the other, held near Michaelmas, is still kept up. The population in 1831 was 1628 for the town division of the parish, or 2139 for the whole parish, which contains 8450 acres. The living is a perpetual curacy, a peculiar in the jurisdiction of the dean of Salisbury, who is impropriator of the great and small tithes, and patron of the benefice, the income of which is stated at 126*l.* in the *Ecclesiastical Revenues' Report*, 1835. There are in the parish eight alms-houses, with a small endowment; an hospital at Luckley Green for a chaplain and sixteen poor men; and an endowed school for boys and girls; also a Sunday school, and two dissenting places of worship. The town is governed by a corporation, consisting of an alderman and eleven capital burgesses. Dr. Thomas Goodwin, Bishop of Bath and Wells in the time of Elizabeth, was born here in 1517, and died here in 1590.

Besides the twelve existing market towns already noticed there are several places in Berkshire which formerly had markets. A list of them is subjoined, with the population of their several parishes in 1831, and such other particulars as seem to require notice:—

Balking, a hamlet of Uffington, three or four miles south-east of Faringdon; population, 185.

Basilden, on the Thames, about midway between Reading and Wallingford; population, 780.

Catmere, about four miles west of East Ilsley; population, 88.

Cookham, on the Thames, a little to the north of Maidenhead, part of which is in the parish; has still two fairs; population, 3337.

East Hendred, about four miles east of Wantage. This place was formerly one of the seats of the cloth manufacture. The stewardship of one of the manors in this parish is a nominal office in the gift of the Chancellor of the Exchequer, and is one of the places given for the purpose of vacating a seat in the House of Commons. There is at East Hendred an antient chapel, supposed to have been erected by the monks of Sheen, to whom the manor just referred to belonged; this chapel now forms two tenements; population, 865.

Hinton, about six miles north-east of Faringdon, a little to the north of the road from that town to Abingdon; it is near the Thames; population, 348.

Kentbury, or Kintbury, antiently Cheneteberie and Kennetbury, about three miles south-east of Hungerford, on the banks of the Kennet; it gives name to the hundred of Kentbury-Eagle; population, 1781.

Shrivenham, five miles south-west of Faringdon, gives name to the hundred; population, 2113.

Speen, about one mile north-west of Newbury. Speenhamland, a tithing of this parish, forms a sort of suburb of Newbury. It was a Roman station, Spinæ, and one of the principal scenes of action in the second battle of Newbury, fought in October, 1644, between the troops of Charles I. and those of the parliament; population, 3044.

Stanford-in-the-Vale, in the Vale of White Horse, about midway between Wantage and Faringdon, has a handsome Gothic church; population, 1016.

Thatcham, on the road from London to Bath, three miles east of Newbury. Its market was first held on Sunday, but changed by Henry III. to Thursday. There is a well-endowed free-school here. The parish, which is the largest in the county except Lambourn, contains 12,960 acres; population, 3912.

Wargrave, a little to the right of the road from Maidenhead to Reading, about midway between them. There is an endowment for educating poor children. Wargrave gives name to a hundred; population, 1423.

West Woodhay, on the borders of Hampshire, about seven miles south-west of Newbury, and about six south-east of Hungerford; population, 127.

Yattendon, about eight miles north-east of Newbury; population, 241.

Two other localities of this county deserve notice. Bray, which gives name to a hundred, and in the parish of which the town of Maidenhead partly stands, is celebrated for the versatility of principle manifested by one of its incumbents, whence 'the Vicar of Bray' has become a proverbial expression for a man who can shift his principles with the times. The well-known song of 'the Vicar of Bray' represents this personage as living in the time of Charles II. and his successors, down to George I.; but Fuller, in his 'Worthies of England,' gives the following account:—'The vivacious vicar hereof living under King Henry VIII., King Edward VI., Queen Mary, and Queen Elizabeth, was first a Papist, then a Protestant, then a Papist, then a Protestant again. He had seen some martyrs burnt (two miles off) at Windsor, and found this fire too hot for his tender temper. This vicar being taxed by one for being a turn-coat, and an unconstant changeling, "Not so," said he, "for I always kept my principle, which is, to live and die the vicar of Bray." Such many, now-a-dayes, who, though they cannot turn the wind, will turn their mills, and set them so, that wheresoever it bloweth, their grist shall certainly be grinded.' (Vol. i. p. 79, Nichols's edit. 1811.)

Cumner, or Cumnor, is about three miles nearly west of Oxford. The manor belonged to the abbots of Abingdon, who had a house here for retirement in case of the plague, sickness, &c., prevailing at Abingdon. After the Reformation this house was granted to the last abbot for life, and on his death came into possession of Anthony Forster, whose epitaph in Cumnor church speaks highly of him as being amiable and accomplished. But in Ashmole's 'Antiquities of Berkshire' (vol. i. p. 149, seq.), he is represented as one of the parties to the murder of the unhappy Countess of Leicester, who was secretly despatched while staying at Cumnor by the order of her husband, who was then aspiring to the hand of Queen Elizabeth. Sir Walter Scott's novel of 'Kenilworth' has given currency to the dreadful history, which is circumstantially related by Ashmole. Part of the mansion is fitted up as a farm-house, and the shell of the remainder is nearly entire. It adjoins the churchyard, and the traditionary name of the Dudley chamber points out the room in which it is supposed the murder was committed. (Lysons's *Magna Britannia*; *Beauties of England and Wales*, &c.)

Divisions for Ecclesiastical and Legal Purposes.—The number of parishes in Berkshire has been given above. The number of vicarages is considerable; in Lysons's *Magna Britannia,* where the parishes are given at 148, the number of vicarages is given at 67. The county is wholly in the diocese of Salisbury, and in the ecclesiastical province of Canterbury, and forms an archdeaconry by itself; the archdeacon takes his title from the county. It is divided into four rural deaneries—Abingdon, Newbury, Reading, and Wallingford.

Berkshire is in the Oxford circuit: Reading and Abingdon are the assize towns. The Lent, or Spring assizes are held at Reading, the Summer assizes at Abingdon. The quarter sessions for the county are held as follows: Epiphany at Reading, Easter at Newbury, Hilary at Abingdon, and Michaelmas either at Abingdon or Reading, as the magistrates shall determine.

Nine members are returned to parliament from Berkshire —three for the county itself, two each for Reading and New Windsor, and one each for Abingdon and Wallingford. The only change in the number of members made by the Reform Bill, was to reduce the members for Wallingford from two to one, for Abingdon previously returned only one. The county members are nominated at Abingdon, and the poll for the county is taken at Reading, Abingdon, Newbury, Wantage, Wokingham, Maidenhead, Great Faringdon, and East Ilsley. Abingdon was the place where the poll was taken in case of a contest before the Reform Bill.

Civil History and Antiquities.—The Atrebates or Atrebatii are considered to have been the tribe inhabiting this district; their name points them out as a colony of the Atrebates (people of Artois) in Gaul, who were, as Cæsar informs us, Belgæ, and of Germanic origin. (*De Bell. Gall.* ii. 4.) Mr. Whitaker, and some other modern antiquaries, consider that the Bibroci inhabited the hundred of Bray, and the Segontiaci a small part of the county bordering on Hampshire. The Bibroci and Segontiaci, and perhaps the Atrebates (for some consider these to be the people mentioned by Cæsar under the name of Ancalites), submitted to Cæsar when he crossed the Thames in pursuit of Cassivelaunus, and advanced into the heart of the country. In the division made by the Romans of that part of the island which they reduced to subjection, Berkshire appears to have been included in *Britannia prima.*

Of this remote period Berkshire retains some memorials in the traces of ancient roads and other antiquities. The roads or parts of roads run in different directions. The most marked is a part of that which led from Glevum (Gloucester) to Londinium (London). It enters Berkshire from Wiltshire, not far from Lambourn, and runs S.E. to Spinæ (Speen), where it appears to have met another Roman road from Aquæ Solis (Bath) to Londinium (London). From Spinæ its course to Londinium does not appear to have been ascertained, though some traces of it appeared a few years since on Bagshot Heath, where it was vulgarly called 'the Devil's Highway.' The traces of other Roman roads are not of any great extent or importance. The Ikening Street (of British origin) passed through Berkshire, but its course is disputed. Some consider 'the Ridge Way,' which runs along the edge of the chalk range over East and West Ilsley Downs, Cuckhamsley Hills, &c., to be the true Ikening Street; while others contend for a line of road under the same range through or near Blewbury, Wantage, Sparsholt, &c. To the west of Wantage, where this last line is most clearly to be traced, it is called Ickleton Way. (Lysons's *Magna Britannia;* Wise's *Account of some Antiquities in Berkshire.*)

The only Roman station in the county, the site of which has been satisfactorily settled, is Spinæ. The name and the distances agree in identifying it with Speen, a village near Newbury. Yet it is remarkable that no Roman remains appear to have been discovered here—none at least sufficient to show the existence of such a station. Bibracte, mentioned in the twelfth *iter* of Richard of Cirencester, is fixed by Whitaker at Bray; though the distance between Londinium and Bibracte differs so much from that between London and Bray as to occasion great difficulty. Pontes, another Roman station, has been fixed by Horsley (*Britannia Romana*) near Old Windsor, but others prefer Staines in Middlesex. Calleva or Caleva was thought by Camden to have been Wallingford; but though the remains of Roman antiquity found there point out Wallingford as the site of an important Roman station, yet the situation assigned to Calleva in the Itinerary of Antoninus cannot be made to agree with Wallingford, the Roman name of which is therefore unknown to us Calleva has also been fixed by conjecture at Coley Manor, near Reading, but Silchester in Hampshire, just on the border of this county, is more generally preferred.

The vallum, which appears to have surrounded the town of Wallingford, was unquestionably a Roman work; at the south-west angle it is very entire for the space of about 270 paces on the south side and 370 on the west. This vallum is single, and appears to have had a wet ditch, which rendered it very secure.

There are remains of camps in several parts of the county, supposed to have been occupied by the Romans, though some of them are probably of British origin. Uffington Castle, an oval earth work on the summit of White Horse Hill, 700 feet in diameter from east to west, and 500 feet from north to south, is one of these. It is surrounded by a double vallum, or embankment, the inner one high, and commanding an extensive view in every direction, the outer one slighter. Letcome or Sagbury Castle, on Letcome Downs, north-east of Lambourn, is almost circular, has a double vallum, and encloses an area of nearly twenty-six acres, but whether this is independent of the space occupied by the entrenchments and ditches does not appear. Another camp or earth-work, called Hardwell Camp, is about half a mile north-west of Uffington Castle; it is an entrenchment of square form, where not broken by the steep edge of the hill, surrounded by a double vallum, and in size about 140 paces by 180. Near Little Coxwell, in the neighbourhood of Faringdon, are the remains of a square camp; and at the other extremity of the county there is a strong entrenchment, of irregular form, on Bagshot Heath, near Easthampstead, 560 paces in length, and 280 in breadth near the middle: it is supposed to be a Roman work, and is commonly called 'Cæsar's Camp.' Remains of works British or Roman are also found near the road from Abingdon to Faringdon, five or six miles from the latter (Cherbury Camp), and on Sinodun Hill, near Wittenham, on the Thames. There are circular camps near Ashdown Park, a little way from Lambourn (Ashbury Camp or Alfred's Castle), and on Badbury Hill, not far from Faringdon; but of the probable origin of the former we have no information —perhaps it was Danish, as also the latter is supposed to be.

Many barrows are found, especially one on the chalk hills N. of Lambourn, covered irregularly with large stones; three of the stones have a fourth laid on them in the manner of the British cromlechs. Mr. Wise inclines to think this is a Danish monument, while Messrs. Lysons would assign to it a British origin. By the country people it is called 'Wayland Smith;' and they have a tradition of an invisible smith residing here, who would shoe a tra-

[Wayland Smith's Cave.]

veller's horse if it was left here for a short time with a piece of money by way of payment. Whether what is called the Dragon Hill, just under the White Horse, is a natural or an artificial mound, is a matter of doubt. A number of barrows clustered together on Lambourn Downs go by the name of 'the Seven Barrows,' but they are more numerous than the name implies. A curious stone, called 'the blowing stone,' is situate at Kingston Lisle, five miles due north of Lambourn. At the back of this stone grows an old elm tree: the stone itself is a species of red sandstone. It is about three feet high, three feet six inches broad, and two feet thick, but it is rough and of rather irregular surface. It has several holes in it of various sizes. There are seven holes in the front, three at the top, a large irregular broken hollow at the north end (for it stands north and south), and one if not more holes at the back. If a person blows in at any one of three of the holes, an extremely loud noise is produced, something between a note upon a French horn and the bellowing of a calf, and this can be heard in a favourable state of weather at Faringdon Clump, a distance of about six miles; and a person standing at about a yard distant from either end of the stone while it is blown into will distinctly feel the ground shake. The holes in the stone are of various sizes, but those which if blown into produce the sound easily admit a person's finger. The hole most commonly used to produce the sound is at the top of the stone; and if a small stick, eighteen inches long, be pushed in at this hole it will come out at a hole at the back of the stone, about a foot below the top, and almost immediately below the hole blown into. It is evident that this is the place at which the air finds its exit, as after the stone has been blown into at the top for a considerable time this hole becomes wet. There seems, however, no doubt that there are chambers in the stone, as the irregular broken hollow at the north end of it has evidently formed a part of another place, at which a similar sound might once have been produced. In the neighbourhood there exists a tradition that this stone was used for the purpose of giving an alarm on the approach of an enemy.

We believe that there is no account of this very singular stone either in Lysons's *Magna Britannia*, or any other publication. It is marked in the Ordnance Map.

When the Saxons became possessed of South Britain, Berkshire was included in the kingdom of the West Saxons. It was partly wrested from them by the powerful and ambitious Offa, king of the Mercians. At what time it returned under the sway of the West Saxon kings we are not aware; probably it was when Egbert elevated Wessex to a permanent superiority over the other parts of the Saxon Octarchy. It formed part of Wessex under the reign of Ethelwulph (son of Egbert), whose youngest son, the great Alfred, was born at Wantage in this county. In the reign of Ethelred I., the brother and immediate predecessor of Alfred, the Danes invaded Berkshire, and possessed themselves of Reading. Here they were attacked by the West Saxons; in the first engagement the Danes were defeated, but in the second they repulsed their assailants. Four days afterwards at Æscesdun, *i.e.* Ash-tree-hill, a more important battle was fought, in which both Ethelred and Alfred were present, and in which the Danes were defeated with great slaughter. The site of this Æscesdun has been much disputed. Wise, in his *Letter to Dr. Mead concerning some Antiquities in Berkshire*, contends for the ridge of the chalk hills extending from Wantage into Wiltshire, and thinks that the White Horse, cut on the hill, is a memorial of the victory. Aston, a village near Wallingford, and Ashampstead, a village about equally distant from Wallingford, Newbury, and Reading, have each their partizans. Mr. Turner (*History of the Anglo-Saxons*) inclines to the opinion that Merantune (where shortly afterwards the Saxons sustained a severe defeat, in which Ethelred was mortally wounded) was Moreton, near Wallingford.

As the White Horse has been connected by Mr. Wise with the above-mentioned battle of Æscesdun, and as it is a work either of Saxon original, or of still higher antiquity, it seems not out of place to give a brief account of it here. The White Horse is the figure of a horse cut in the turf on the north-west face of the range of chalk downs which cross this county at a part where the declivity is at once lofty and steep. Mr. Wise is in raptures with the skill displayed in the work, and in the admirable choice of a situation where it is little exposed to injury or decay. More sober judges, however, describe it as a rude figure, about 374 feet in length. When the afternoon sun shines upon it, it may be seen at a considerable distance—ten, twelve, or even fifteen miles; and from its immense size forms a remarkable object. It has given name to the hill on which it is carved and to the vale above which that hill rises. The inhabitants of the neighbourhood have an antient custom of assembling 'to scour the horse,' *i.e.* to clear away the turf where it has encroached upon it. On such occasions a rural festival is held, and they are regaled by the lord of the manor; but it does not appear that they have observed this custom since 1780. Nearly above the White Horse, on the summit of the hill, is the antient camp or earthwork called Uffington Castle; and in its vicinity are the antiquities—Hardwell Camp, Alfred's Castle, Dragon Hill, the Seven Barrows, and Wayland Smith, already described. Mr. Wise thought that Wayland Smith was the monument of a Danish King slain in the Battle of Æscesdun.

Messrs. Lysons have given some weighty reasons, urged by Dr. Beke, professor of modern history in the university of Oxford, for identifying the Ethandune of the Saxon Chronicle, where King Alfred gained the victory that restored him to his throne, with Eddington, near Hungerford in this county; this is contrary to the general opinion which has supposed Ethandune to be Eddington, near Westbury in Wilts.

In the war with the Danes during the reign of Ethelred II., Berkshire was laid waste with fire and sword. The barbarous invaders burnt Reading, Wallingford, and other places. This was in 1006. At the time of the Norman invasion, William the Conqueror received at Wallingford the submission of the archbishop Stigand and of the principal barons, before he marched to London; and shortly afterwards a strong castle was built at Wallingford by Robert D'Oyley, one of the followers of the conqueror.

In the civil war consequent upon the usurpation of Stephen, Berkshire was again the seat of war. Brian Fitz-court, who had come by marriage into possession of Wallingford Castle, early took the side of the Empress Maud; and his castle afforded her a secure retreat when she fled from Oxford. Faringdon Castle, which was erected by Robert earl of Gloucester, natural brother of the Empress, was taken by Stephen, and so completely demolished, that not a vestige now remains. When John rebelled against his brother, Richard I., he seized Wallingford and Windsor Castles, but they were taken from him again by the barons in the king's interest, and placed in the hands of the queen dowager. The strength of these two fortresses rendered them important as military stations, in the troubles which took place during the latter part of the reign of John, and during the reign of Henry III. In 1263 Windsor Castle was taken by Simon de Montfort. During this early part of our history, the palace at Old Windsor, or the castle at New Windsor, was the frequent residence of the king.

Of the castles of this period there are few remains except at Windsor. The antient castle there, still the abode of royalty, will be described under the article WINDSOR. Of Wallingford Castle, the ditches and earthworks, which are of great extent, and a fragment of a wall, are the only remains. Donnington Castle, near Newbury, is said to have been founded in or near the time of Richard II. It has been asserted, that Chaucer the poet was possessor and inhabitant of this place, but the assertion is not borne out by evidence. Camden, who calls its Dennington or Dunnington, describes it as a small but elegant castle, on the top of a woody hill, commanding a pleasant prospect, and lighted by windows on every side. It suffered so much, however, during the civil war, that only a gateway with two towers is remaining now. The very sites of the castles at Reading, Newbury, Faringdon, and Brightwell, near Wallingford, are unknown. Aldworth Castle, about five miles south-east of East Ilsley, has scarcely a vestige left: some foundations of walls built with flints have been lately dug up.

There is an old manor-house at Appleton, not far from Oxford, supposed to be of the time of Henry II.; and there are other antient manor or other dwelling-houses at Withams and Cumnor, near Oxford; Little or East Shefford, between Newbury and Lambourn; Sutton Courtney, near Abingdon; and Ockholt manor-house, near Maidenhead. Ockholt manor-house is an antient seat of the Norreys family, now a farm-house. It appears to have been built before the Reformation. In the hall is a large bay window filled with coats of arms, which appear coeval with the building; among them are those of the abbey of Abingdon and of the Norreys family, with their motto, 'Feythfully serve,' frequently repeated. (See Lysons's *Magna Britannia.*)

[Ockholt Manor-house.]

During the prevalence of the Roman Catholic faith, many religious houses were built and endowed in Berkshire. Tanner's *Notitia Monastica* contains a list of thirty-five religious establishments of all kinds; three of which were numbered at the Reformation among the 'greater monasteries,' and possessed a clear revenue of 200*l.* per annum.* The most important by far of these establishments were the Benedictine abbeys at Abingdon and Reading. Abingdon Abbey appears to have been originally founded upon a hill called Abendune, about two miles from the present town, nearer Oxford, by Cissa, a West Saxon, governor of great part of Berks and Wilts, under Kentwin, king of the West Saxons. Five years after its foundation this monastery was removed to a place then called Sevekisham or Seovechesham, or Seusham, and since then Abbendon or Abingdon, and enriched by the munificence of Ceadwalla and Ina, kings of Wessex, and other benefactors. The abbey was destroyed by the Danes, and the monks deprived of their chief possessions by Alfred the Great; but the possessions were restored, and the rebuilding of the abbey commenced at least, by Edred, grandson and one of the successors of Alfred. Numerous benefactions increased the wealth of the establishment, and the abbot was mitred. The yearly income at the time of the suppression was 2042*l.* 2*s.* 8*d.* gross, or 1876*l.* 10*s.* 9*d.* clear. Reading Abbey was also for Benedictines, and the abbot was mitred. This abbey was founded by King Henry I., A.D. 1121, and richly endowed. At the suppression it had 2116*l.* 3*s.* 9*d.* gross, or 1938*l.* 14*s.* 3*d.* clear yearly income. There are some remains of both these great establishments. Those at Reading consist of the gateway and of some other ruins, which are little more than rude heaps of stone, all architectural decoration having been defaced. The Abbey Mills are still remaining. At Abingdon some antient rooms are occupied as a brewery; and the gateway of the abbey is still used as a prison.

At Bustlesham, or Bysham Montague, now Bisham, on the banks of the Thames, nearly opposite Marlow in Buckinghamshire, was a priory for canons of the order of St. Austin, founded 1338, by William Montacute, earl of Salisbury. Their yearly revenue at the suppression was 327*l.* 4*s.* 6*d.* gross, or 285*l.* 11*s.* clear. Upon the surrender of this monastery to Henry VIII., it was refounded for the Benedictines, its revenue more than doubled, and the abbot mitred; but this new establishment was also suppressed four or five years after. There are no remains of the conventual buildings except an antient doorway, now the entrance of a somewhat later edifice, the seat of a branch of the Vansittart family.

Of the minor establishments there are some remains. Of the church of the Grey Friars (Franciscans) at Reading, there are considerable remains now used as a Bridewell; there are also some ruins of the Benedictine monastery at Hurley, between Maidenhead and Henley-upon-Thames, and of the buildings for the priests and clerks of a former collegiate church at Wallingford, though the church itself has been entirely destroyed. The parish church at Shottesbroke, near Maidenhead, once belonged to the college of St. John the Baptist there. St. George's Chapel, at Windsor, will be mentioned in the article WINDSOR.

Of the churches of earlier date, Avington deserves mention, from its remarkable specimens of Norman (or as it is sometimes termed Saxon) architecture. The arch which divides the chancel from the nave is a portion of two arches, and each portion being more than a quadrant, the arch has a depending point in the middle. Portions of the Norman style may be observed in St. Nicholas Church at Abingdon, and in other places. Wilford Church, between Newbury and Lambourn, has a Norman round tower, surmounted by a portion in the early English style, and a spire in the decorated English. As some part of the body of the church is in the perpendicular style, this church contains examples of all the different styles of what is usually called Gothic architecture. Great Shefford Church, not far from Welford, has a round tower, surmounted by an octangular story. Shottesbroke Church is a beautiful miniature cross church, with a tower and spire at the intersection. Uffington church, also in the shape of a cross, is large and handsome. St. Lawrence's Church at Reading has a fine tower of checquered flint-work in the perpendicular style.

In the civil war between Charles I. and the Parliament, Berkshire became the scene of several remarkable contests. Windsor was garrisoned by the Parliament, and continued in their possession throughout the war. It was once attacked by Prince Rupert, but he was unsuccessful. Wallingford was garrisoned for the king, and continued in the hands of the Royalists as long as they were capable of making any stand. In 1642, the first year of the war, the King's army gained possession of Reading, the Parliamentary garrison retiring upon their approach, and the county, with the exception of the parts round Windsor, came into the power of the Royalists; but in April, 1643, the Parliamentary forces, under the Earl of Essex and Major-General Skippon, retook Reading by capitulation. In the latter part of the same year was fought the first battle of Newbury, between the Parliamentarians under the Earl of Essex, and the Royalists commanded by the king in person. The victory was doubtful, but the action has been rendered memorable by the fall of the accomplished Lord Falkland. The town of Reading fell into the hands of the Royalists soon after, and was garrisoned by them, but evacuated the following year. In 1644, Donnington Castle, which was held for the king by a garrison under Captain John Boys, was besieged by a strong detachment of the opposite party; but though the place was reduced to a heap of ruins, the gallant defenders held out and the Parliamentarians raised the siege upon the king's approach. Shortly after (viz. 27th October, 1644) a second battle was fought at Newbury, with the same indecisive result which attended the former one. The king commanded his own troops, and the Earls of Essex and Manchester, and Sir William Waller, those of the parliament. No person of note fell in the battle. The army of the Earl of Essex wintered this year in the county, at Abingdon, Reading, &c. The rest of the war was not marked by any great event. In 1645 Sir Stephen Hawkins made an unsuccessful attempt on the Parliamentary garrison at Abingdon; and Cromwell failed in an attack upon Faringdon, but fought a successful skirmish at Radcot Bridge in that neighbourhood, and took 200 prisoners. In 1646 Prince Rupert attacked Abingdon again, but without success.

A slight skirmish occurred at Reading in 1688, and a trifling affair at Twyford, between Reading and Maidenhead. These were the only actions which occurred during the Revolution by which that year was distinguished.

Population.—Berkshire is essentially an agricultural county, and ranks in this respect fourteenth among the counties of England. At the census of 1831 it was found that among 37,084 males, twenty years of age and upwards, residing within the county, no more than 521 were employed in manufactures, or in making manufacturing machinery. Out of this number, nearly 300 are employed in making mats and sacking at Abingdon, and sail-cloth there and elsewhere; about 100 are engaged in silk-manufactures at Reading and Newbury, and 25 in copper-mills at Bisham. The proportions in which the inhabitants of the county were divided into the leading classes of employment at the enumerations of 1811, 1821, and 1831, were as follows:—

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* It may be mentioned here that Speed's valuation is that of the gross income; Dugdale's valuation is the clear yearly income.

	1811.	1821.	1831.
Agriculture (families in 100)	53·5	53·3	45·2
Trade, manufactures, &c.	30·3	31·7	31·8
Other classes	16·2	15	23
	100	100	100

The following summary of the population, as it existed in May 1831, is given in Rickman's Tables, and exhibits the number and occupations of the people in each hundred, &c., of the county:—

HUNDREDS, &c.	HOUSES.				OCCUPATIONS.			PERSONS.			Males twenty years of age.
	Inhabited.	Families.	Building.	Uninhabited.	Families chiefly employed in agriculture.	Families chiefly employed in trade, manufactures, and handicraft.	All other families not comprised in the two preceding classes.	Males.	Females.	Total of persons.	
Beynhurst, Hundred	638	687	3	16	340	118	229	1,679	1,745	3,424	865
Bray	703	762	2	28	350	210	202	1,719	1,761	3,480	893
Charlton	573	623	2	8	411	110	102	1,631	1,477	3,108	828
Compton	486	537	1	6	374	94	69	1,340	1,256	2,596	641
Cookham	1,098	1,270	15	41	404	404	462	2,998	3,004	6,002	1,533
Faircross	2,391	2,507	15	56	1,506	552	449	6,039	5,918	11,957	3,001
Faringdon	742	872	7	18	491	242	139	2,135	2,072	4,207	1,023
Ganfield	653	705	3	14	513	96	96	1,758	1,653	3,411	891
Hormer	631	712	2	12	582	68	62	1,765	1,558	3,323	876
Kintbury Eagle	1,805	1,964	7	55	1,267	431	266	4,281	4,475	8,756	2,236
Lambourn	641	658	2	15	487	121	50	1,621	1,464	3,085	807
Moreton	1,180	1,312	5	19	970	234	108	3,059	2,871	5,930	1,511
Ock	1,321	1,455	6		978	254	223	3,298	3,301	6,599	1.740
Reading	1,875	1,966	15	25	1,220	451	295	4,868	4,596	9,464	2,400
Ripplesmere	975	1,289	22	59	335	870	84	2,832	2,835	5,667	1,560
Shrivenham	898	1,119	7	9	818	156	145	2,699	2,597	5,296	1,319
Sonning	1,087	1,187	11	35	474	463	250	3,070	2,765	5,835	1,527
Theale	1,105	1,222	3	29	830	230	162	3,034	2,806	5,840	1,493
Wantage	1,570	1,680	9	42	795	675	210	3,804	3,757	7,561	1,937
Wargrave	608	683	6	34	417	135	131	1,711	1,658	3,369	866
Abingdon (Borough)	1,139	1,191	8	45	116	694	381	2,559	2,700	5,259	1,331
Newbury (Town)	1,256	1,269	2	72	30	623	616	2,856	3,103	5,959	1,505
Reading (Borough)	3,081	3,502	46	226	139	1,796	1,567	7,206	8,389	15,595	3,781
Wallingford (do.)	476	542	2	20	89	304	149	1,186	1,377	2,563	615
Windsor (do.)	1,100	1,367	33	36	111	553	703	3,405	3;698	7,103	1,905
Totals	28,032	31,081	234	975	14,047	9,884	7,150	72,553	72,836	145,389	37,084

HUNDREDS, &c.	AGRICULTURE.			Employed in manufacture or in making manufacturing machinery.	Employed in retail trade or in handicraft as masters or workmen.	Capitalists, bankers, professional and other educated men.	Labourers employed in labour not agricultural.	Other males twenty years of age (except servants).	MALE SERVANTS.		Female servants.
	Occupiers employing labourers.	Occupiers not employing labourers.	Labourers employed in agriculture.						Twenty years of age.	Under twenty years of age.	
Beynhurst, Hundred	43	6	387	21	132	28	52	144	49	23	161
Bray	39	26	387	—	253	44	85	34	25	10	126
Charlton	86	22	420	—	163	29	17	30	61	37	111
Compton	39	5	432	—	69	20	29	21	26	52	83
Cookham	44	20	538	—	453	63	213	87	115	61	353
Faircross	145	49	1,575	20	673	80	139	188	132	155	481
Faringdon	60	28	522	—	270	27	62	36	18	13	183
Ganfield	82	11	499	—	154	21	41	32	57	19	127
Hormer	64	11	651	—	84	11	17	21	17	3	97
Kintbury Eagle	171	39	1,201	—	523	77	52	113	60	10	280
Lambourn	37	10	428	—	152	12	14	137	17	10	82
Moreton	102	12	987	—	280	38	24	49	19	12	167
Ock	135	37	1,047	—	290	44	64	72	51	32	217
Reading	117	32	1,272	7	518	57	186	139	72	43	250
Ripplesmere	58	11	401	—	477	29	436	102	46	7	97
Shrivenham	112	23	764	—	228	24	50	69	49	34	190
Sonning	85	34	487	1	509	38	125	146	102	75	220
Theale	91	17	846	—	264	56	63	84	72	41	207
Wantage	115	25	901	68	548	61	63	103	53	21	248
Wargrave	43	26	441	—	188	64	19	40	45	10	144
Abingdon (Borough)	4	—	134	227	585	65	243	58	15	6	179
Newbury (Town)	9	3	37	22	783	66	443	112	30	6	227
Reading (Borough)	10	8	204	148	2,189	234	686	154	148	64	1,029
Wallingford (do.)	7	—	84	4	298	54	114	25	29	18	157
Windsor (do.)	13	3	157	—	675	205	471	228	153	48	606
Totals	1,711	458	14,802	521	10,758	1,447	3,708	2,224	1455	810	6,022

The absolute population of Berkshire, at each of the four enumerations made in this century, was:—

	Males.	Females.	Total.	Incr. per cent.
1801	52,821	56,394	109,215	
1811	57,360	60,917	118,277	8·29
1821	65,546	66,431	131,977	11·58
1831	72,553	72,836	145,389	10·08

Showing an increase between the first and last enumerations of 36,174 persons, or 33 per cent. This is considerably below the rate of increase in the whole of England, which amounted, in the same period, to 57 per cent.

The ages of the population in the county, so far as the same could be ascertained in 1821, were as follows:—

	Males.	Females.	Total.
Under 5 years	8,908	8,472	17,380
5 to 10	8,566	8,014	16,580
10 „ 15	7,318	6,807	14,125
15 „ 20	6,056	5,836	11,892
20 „ 30	8,837	9,800	18,637
30 „ 40	6,795	7,316	14,111
40 „ 50	5,740	5,983	11,723
50 „ 60	4,386	4,352	8,738
60 „ 70	3,030	3,132	6,162
70 „ 80	1,719	1,712	3,431
80 „ 90	468	552	1,020
90 „ 100	30	41	71
100 years and upwards	1	2	3
	61,854	62,019	123,873

County Expenses, Crime, &c.—The sums expended for the relief of the poor at the four decennary years of enumeration within the present century, were—

In 1801, 81,994*l.* being an average of 15*s.* for each inhab.
„ 1811, 160,873*l.* „ 27*s.* 2*d.* „
„ 1821, 104,338*l.* „ 15*s.* 9*d.* „
„ 1831, 115,070*l.* „ 15*s.* 10*d.* „

The sum expended for this purpose, in the year ending 25th March, 1834, was 100,183*l.*, which, on the supposition that the population has gone on increasing since 1831 at the same rate as it did in the ten preceding years, is an average of 13*s.* 4*d.* for each inhabitant. These averages are all very far beyond those for the whole of England and Wales, and which were—

In 1801, 9*s.* 1*d.* for each inhabitant.
„ 1811, 13*s.* 1*d.* „
„ 1821, 10*s.* 7*d.* „
„ 1831, 9*s.* 9*d.* „
„ 1834, 8*s.* 8*d.* „

The sum raised within the county for poors' rate, county rate, and other local purposes, in the year ending 25th March, 1833, was 136,400*l.*, and was levied upon the various descriptions of property as follows:—

On land	£101,749	13
„ Dwelling-houses	29,861	4
„ Mills, factories, &c.	3,298	11
„ Manorial profits, navigation, &c.	1,490	12
	£136,400	0
Of which was expended—		
For the relief of the poor	£111,597	3
In suits of law, removal of paupers, &c.	3,121	19
For other purposes	18,459	16
	£133,178	18

The mode in which the return has been made up for the year ending 25th March, 1834, does not enable us to distinguish the descriptions of property which were assessed for local purposes. The total amount levied in that year was 127,229*l.* 11*s.*, and the expenditure was as follows:—

For the relief of the poor	£100,183	3
In suits of law, removal of paupers, &c.	3,458	5
For other purposes	20,775	19
	£124,417	7

A saving has, therefore, been effected of more than ten per cent. in the expense of relieving the poor, occasioned partly by the diminished cost of provisions, and partly by more careful management, but the remaining sources of expenditure have been so increased that the general saving has amounted to only 6½ per cent.

The number of turnpike trusts in Berkshire in 1829 was twenty; the number of miles of road under their charge 319, and the annual income of the same derived from tolls and parish compositions, 15,388*l.* The annual outlay for repair and management of the roads was 15,092*l.*

The county expenditure for various purposes, exclusive of the relief of the poor, was as follows in 1833, the latest time to which any statement has been given:—

Bridges and roads leading to them	£986	9	1
Gaols	2090	12	11
Expenses of criminal trials at quart. sess.	631	1	1
„ „ circuits	657	17	5
„ coroners	128	12	10
„ shire halls	13	16	0
„ lunatic asylums	34	14	6
„ printing, bailiff, marshal, &c.	359	16	11
„ conveying prisoners to gaol	178	16	11
„ clerk of assize	41	4	2
„ conveying vagrants	997	3	2

The sum levied for county rate in 1833 was 11,207*l.* 18*s.* The accounts are examined on the first day of quarter sessions in the grand jury room, adjoining to the court, and from this examination no person is excluded.

The numbers of persons charged with the commission of criminal offences in Berkshire in the three septennial periods ending with 1820, 1827, and 1834, were 912, 1113, and 1505 respectively, being an average of 130 annually in the first period, of 159 in the second period, and of 215 in the last septennial period.

The number of persons tried at quarter-sessions in 1831, 1832, and 1833, was 49, 68, and 95 respectively, of whom were—

	1831.	1832.	1833.
Felonies	46	60	85
Misdemeanors	3	8	10
	49	68	95
Of these were—			
Convicted	42	49	76
Acquitted	7	19	19
	49	68	95

In addition to those tried there were committed and afterwards discharged by proclamation, 8 in 1831, 11 in 1832, and 18 in 1833.

The total number of persons charged with crimes at the assizes and sessions in 1831 was 250. Of these 14 were offences against the person, 20 offences against property committed with violence, 196 offences against property committed without violence; of which 158 were cases of simple larceny: 2 were malicious offences against property; 6 were for uttering counterfeit coin and forgery of bank notes. Of the remaining 12 charges, 7 were for offences against the game laws, 1 for breaking prison, and 4 for simple breaches of the peace. Of those brought to trial 163 were convicted; the remaining 87 were either acquitted or discharged without trial. Only one execution occurred, that of a youth between 16 and 21 years of age for murder. Sentence of death was passed upon 8 others, all for offences committed with violence, but these sentences were commuted, 7 of the criminals being transported for life, and the eighth having been subjected to a few months' imprisonment. Of the remaining convicts 12 were transported for life, 8 for 14 years, 28 for 7 years, 104 were imprisoned for various terms, four-fifths being for periods under six months, 1 received a public whipping, and 1 was fined and discharged.

Of the 250 persons charged with offences, 226 were males and 24 were females. Their ages were as follows:—

	Males.	Females.
Aged 12 years and under	2	0
Between 12 and 16 years of age	19	3
„ 16 and 21 „ „	76	5
„ 21 and 30 „ „	91	12
„ 30 and 40 „ „	24	4
„ 40 and 50 „ „	7	0
„ 50 and 60 „ „	5	0
Above 60 „ „	1	0
Age not ascertained	1	0
	226	24

The proportion of offenders to the population in 1834 was 1 in 580. The centesimal proportions in which the various crimes were committed were as follows:—

Offences against the person	5·60
Offences against property, committed with violence	8·
Offences against property, committed without violence	78·40
Malicious offences against property . .	0·80
Forgery and offences against the currency . .	2·40
Other offences, not included in the foregoing classes	4·80
	100

There are ten savings-banks within the county, at Abingdon, Faringdon, Hungerford, Maidenhead, Newbury, Reading, Twyford, Wantage, Windsor, and Wokingham. The number of depositors and amount of deposits on the 20th November, 1832, 1833, and 1834 were respectively as follows:—

	1832.	1833.	1834.
Number of depositors	7,128	7,586	7,937
Amount of deposits	£238,659	250,181	260,425

The accounts of these savings-banks, with reference to the number and magnitude of the deposits on the 20th November, 1834, stood as follows:—

	Depositors.	Deposits.
Not exceeding £20	4,152	£29,869
50	2,149	65,437
100	1,007	69,408
150	382	45,861
200	170	29,621
Above 200	77	20,229
Total . .	7,937	£260,425

Education.—The following abstract of the various establishments for education in Berkshire is taken from the returns made to the House of Commons in the session of 1835, in consequence of an address moved by the Earl of Kerry in May, 1833, and which returns have been put in order by Mr. Rickman:—

	Schools.	Scholars.	Total.
Infant Schools	23		
Number of infants at such schools, ages from 2 to 7 years—Males		238	
Females		211	
Sex not specified .		244	
			693
Daily Schools	511		
Number of Children from 4 to 14 years old—Males		6737	
Females		5862	
Sex not specified		3282	
			15,881
Schools	534		
Total of Children under daily instruction			16,574
Sunday Schools	225		
Number of Children from 4 to 15 years old—Males		5800	
Females		5873	
Sex not specified		2440	
			14,113

If we take as the groundwork of the calculation the summary of ages obtained at the census of 1821, which summary was made to include not more than 94 per cent. of the then population of the county, we shall find that, making allowance for the increase that has since occurred, the inhabitants between the ages of 2 and 15, at present living in Berkshire, must amount to rather more than 50,000; and consequently that very few more than 3 in 5 of those children are receiving instruction in schools of all descriptions, even supposing, what is not the fact, that none of the scholars attending at Sunday schools receive daily instruction; but as many attend both the Sunday and day schools, it follows that they are enumerated twice in the abstract, and accordingly make the sum total greater than it really is.

Maintenance of Schools.

Description of Schools.	By endowment.		By subscription.		By payments from scholars.		Subscrip. and payment from scholars.	
	Schls.	Scholars.	Schls.	Scholars.	Schls.	Scholars.	Schls.	Scholars.
Infant Schls.	—	—	1	27	20	474	2	192
Daily Schls.	76	2142	65	3821	317	7150	53	2768
Sunday Schs.	9	420	188	12039	1	50	27	1604
Total	85	2562	254	15887	338	7674	82	4564

		Schls.	Scholars.
Schools established by Dissenters included in the above.	Infant Schools	0	—
	Daily Schools	5	120
	Sunday Schools . .	48	3364

Seventy-three Boarding Schools are included among the 511 daily schools.

The schools established since the year 1818 are as follows:—

Infant and other daily schools	157	containing	6694	scholars.
Sunday-schools	136	„	9252	„
	293		15946	

Lending libraries of books are attached to 21 schools in Berkshire.

BERLICHINGEN, GOETZ VON, a German knight, or petty feudal lord of Suabia, notorious in the history of the middle ages for his bravery and his lawless turbulence. He lived under the reign of the emperor Maximilian I., the predecessor of Charles V. Goetz was called iron-handed, because having lost his right hand in battle, he had a steel one made with springs, by means of which, it is said, he could still handle his lance. He was often at war with his neighbours, and at times he took the part of the peasantry against the nobles. In 1513 he declared war against the free imperial town of Nürnberg. With 170 men he waylaid the merchants returning from Leipzig, plundered them of all they had, and consigned many to his dungeons, in order to exact a ransom for them. Upon this the emperor put him under the ban of the empire, and sentenced him to pay 14,000 florins. The money was collected after some difficulty, and the offender was restored to his civil rights. (Dunham's *History of the Germanic Empire* in Lardner's *Cabinet Cyclopædia.*) Having again offended the emperor, he was at last besieged in a castle by the imperial troops, where he defended himself desperately, but was wounded, and died. Goethe has taken him for the subject of one of his dramas, *Goetz von Berlichingen*, which was and still is very popular in Germany, as being a picture of the manners and social state of the latter part of the middle ages, before the imperial authority was thoroughly enforced through the country by means of standing armies, well disciplined, and provided with artillery. (See Goethe's drama already mentioned, which has been translated by Sir W. Scott, and Madame de Stael's *Allemagne.*)

BERLIN, a minor circle in the administrative circle of Potsdam, which, with that of Frankfort, forms the province of Brandenburg in the kingdom of Prussia. The circle of Berlin, containing simply the city of Berlin and its immediate environs, is the smallest subdivision of that description in the Prussian dominions, but the most populous. Its area does not exceed twenty-six square miles: but it comprises two towns, and twenty-two villages and hamlets; and the number of its inhabitants in 1826 was 216,237, and in 1831, 229,843, besides the military, who were about 16,600.

The city of Berlin, which derives its name from 'Berle,' a word implying 'uncultivated land' in the language of the Sclavonian Vends, who were the earliest settlers in this quarter, is situated in a sandy plain on both banks of the Spree, which is 200 feet broad in this part of its course. The Spree winds through Berlin from south-east to north-west, and divides it into two nearly equal portions.

Berlin is the capital of the province of Brandenburg, the metropolis of the Prussian monarchy, the largest and the finest town in Germany, Vienna only excepted, and the ninth in Europe in point of population. It occupies a surface of upwards of 6700 acres, at an elevation of about 125 feet above the level of the sea, and is above ten miles in circuit. It is the seat of government, and of the supreme courts of judicature. The various quarters of the town, which are united under one system of municipal administration, and have, since the year 1724, borne the name of royal residences ('königliche Residenz-Städte'), are six in number. The quarters are, Berlin, the old town, between the right bank of the Spree and the King's Fosse, which place it on a complete island; Cologne, Old and New, on the left bank of the Spree, on an island formed by a canal which issues from and flows again into the Spree; the Friedrichswerder, which lies to the south-east of New Cologne; Dorotheen-stadt, or the New Town, likewise on the left bank of the Spree, between this river and the celebrated Brandenburg Gate, on that part of the Spree which separates the pleasure-garden ('Lust-garten') from the square next the arsenal; and Frederick's Town ('Friedrichs-stadt'), the most south-western and the handsomest part of Berlin. Connected with these six quarters there are four Vorstädte, or suburbs, within the walls, and one beyond them: those within the walls are the suburbs of Spandau, the King's, Stralau, and

Louisa, the last being formerly called the Colognian, or Köpenickian suburb; the fifth is New Voigtland, or the Oranienburg suburb, beyond the Spandau suburb in the north-west.

These several quarters of Berlin, with the exception of Voigtland, are closely connected with each other, and surrounded by a wall sixteen feet high, in which there are fourteen land-gates and two water-gates, besides four minor outlets. They are divided into twenty-nine police quarters, and contain eleven palaces, or residences for members of the royal family, and 8714 private dwelling-houses * (6700 within the walls), in which there are 53,363 distinct family occupations; the rent of which amounts to 3,985,270 dollars, or about 547,980*l.* The portion insured against fire in 1833 was valued at 79,194,650 dollars, or about 10,889,264*l.*

The number of bridges in Berlin is 42: the principal are the Schloss-brücke, or Bridge of the Palace; the Marshal Bridge; and Frederick's Bridge, which is of iron, 245 feet long, between 32 and 33 feet broad, and consists of eight arches of 27 feet diameter, and 5¾ feet in height. The number of squares, open spaces, and markets is 32; of streets, 158; of lanes, 14; and of passages, 14. The places of worship for the Lutherans, Reformed Lutherans, and Roman Catholics, are 27 churches; and for the 4000 Jews, one synagogue. There are 17 public hospitals, and 8 military infirmaries; 17 barracks, and 4 riding or drilling houses for the soldiery; 8 royal magazines, independently of 4 powder-magazines out of the town; and 24 cemeteries, of which 16 lie within the walls, and 8 beyond them. The total number of public buildings is 178.

The Spree receives, at what is called the 'Ship-builders' Dam,' the Panke, which flows through part of the suburb of Spandau; and without the walls is the Sheep or Militia Fosse, which runs out of the Spree near the Silesian Gate, winds along the skirts of Louisa and Frederick's Towns, skirts the Thier-garten, which is a sort of open park, and rejoins the Spree in the vicinity of the village of Lietzow. Three canals, also, namely, the former ditch of the ramparts, with the King's and Sluices' Fosses, are of much utility to the inhabitants.

Of the 14 land-gates of Berlin, there is none to be compared with the Brandenburg Gate, on the west side of the town, next the Square of Paris, in the Dorotheenstadt. It is a copy of the Propylæa of the Acropolis at Athens, but on a much larger scale: it was constructed in 1780, and exhibits a double colonnade of 12 columns of the Doric order, each 44 feet in height, and 5 feet 8 inches in diameter, which occupy the centre, with 5 entrances between them, that in the centre having an iron gate 18 feet high; the structures on each side of it have their roofs supported by 18 smaller columns, 24 feet in height. The pediment, which rests upon the 12 larger and central columns, is surmounted by a Victory standing upon a car drawn by four horses, 12 feet high. This was carried off by the French in 1807, and brought back from France seven years afterwards. The entire breadth of the Brandenburg Gate is 199 feet (195 Berlin feet), and its elevation, including the pediment, rather more than 65. The bassi-rilievi on the pediment represent Margrave Albert Achilles capturing a standard with his own hands from the Nuremberg troops; and the sculptures in the metopes represent the combat between the Centaurs and Lapithæ.

Immediately outside of this gate lies the Thier-garten, which is laid out in walks, avenues, and labyrinths. It contains a number of country-residences and gardens, stationary zelte, or tents for refreshments, a fine flower-garden, the master of the hunt's establishment and public gardens, the great area for military exercise, and the handsome palace of Bellevue with spacious grounds, where Prince Augustus resides.

Our description of what is most remarkable in Berlin will be best understood if we take the chief objects in the respective quarters of the town in regular succession. We shall begin, therefore, with *Berlin*, the oldest quarter: here we find the post-house, town-hall, and seat of the civic judicature; the general military school; the royal gymnasium, called the Joachims-thal, with four courts; the church of St. Nicholas, supported by 16 Gothic columns, which is 174 feet in length, 74 in width, and 40 in height: it has a steeple, and is the most antient church in Berlin, having been consecrated in the year 1223; the Landschafts-haus, or provincial house of assembly for the representatives of the mark of Brandenburg; St. Mary's Church, in length 211 feet, breadth 99, and height 56, with a handsome pulpit of alabaster, some fine paintings by Rode, the tomb of Kanitz, the poet, and a steeple 292 feet high, accounted the loftiest in the city; Frederick's Bridge, which we have already described; the Lager-haus (storehouse), in which are several royal manufactories, besides the *ateliers* of Rauch the sculptor, and two other artists, Tick and Wach; the King's Gewerbhaus (handicraft establishment), comprising a mechanics' institute, workshops in which metals are melted, and screws, wheels, &c., are manufactured by steam; apartments containing casts, drawings, and engravings, for gratuitous instruction in the art of design and modelling; and a laboratory, library, and collection of models, attached to the Society for Promoting Mechanical Industry, which has upwards of 800 members; the Royal Gymnasium of the Grey Friars (Zum Grauen Kloster), attended by more than 400 youths; the Garrison Church, the largest in Berlin, containing a superficies of nearly 16,000 feet, independently of the space occupied by the columns: it possesses a remarkably fine organ, and several allegorical paintings of Prussian commanders; the parochial church, built in the shape of a cross, 51 feet broad, and 102 long; Frederick's Hospital, or Orphan Asylum, which maintains more than 350 orphans, provides board for 650 other children, and has a royal inoculating institution attached to it; and, lastly, the Stadtvogtei, or prefecture of the town, which contains the police offices, and the prisons for all offenders within the jurisdiction of the civic auhorities.

Crossing over to the opposite, or left bank of the Spree, we enter *Old Cologne*, the most central quarter of Berlin, from the Long Bridge, a structure of stone, with five arches, 165 feet in length, and with an iron balustrade. Upon this bridge stands the massive equestrian bronze statue of the great Frederick William, elector of Brandenburg, on a pedestal, having at each of its four corners the colossal effigy of a slave. This monument, moulded by Schlüter and cast by Jacobi, was erected in the year 1703. The bridge leads immediately into the Schloss Platz, or square of the palace, an area 1450 feet in length and 450 in width, the north-west side of which is occupied by the royal palace, an oblong-rectangular building composed of four courts, and containing five hundred habitable apartments. It is the present residence of the heir-apparent and Prince William, his uncle. It is 474 feet in length, 284 in breadth, 104 in height, and 1516 in circuit. It contains the great library, belonging to the heir-apparent; the royal treasury and archives-depôt; the picture gallery, with nearly 300 specimens of the Italian, Flemish, and old German schools; the white hall, with marble statues of four emperors, and sixteen electors of Brandenburg; the museums of natural history and mechanical arts, as well as of the fine arts; and the three great reservoirs over the principal entrance, which is an imitation of the triumphal arch of Severus in Rome: these reservoirs are kept constantly filled with 7000 tons of water.

The gardens at the back of this magnificent edifice are surrounded by an *allée* of poplars and chestnuts, but derive their chief attraction from the noble Museum which stands at their northern extremity, and contains the choicest specimens of the arts that were scattered through the royal collections in Berlin and Potsdam, as well as a multitude of acquisitions made of late years. This splendid structure will immortalize the name of Schinckel, the architect. Owing to the swampy nature of the soil, it is built on upwards of 1000 pine-piles from 48 to 50 feet in height. Its form is a rectangular oblong, 281 feet in length, and 182 feet in depth. It is 62 feet in elevation from the ground to the uppermost edge of the entablature which runs round it, has a basement story and two floors above it, and the principal front, which faces the gardens, is broken by a flight of 21 steps, leading to a vestibule 16 feet deep, which is formed by 18 Ionic columns. The various collections which it contains are, the picture gallery, consisting of a fine hall 208 feet long, and nearly 31 feet wide; two smaller halls, each 125 feet long and 29 feet wide, and several apartments adjoining; the whole, including the partitions between the windows, present a surface of wall of between 38,000 and 39,000 square feet. It contains also collections of antient sculptures, vases, antient and modern coins, antient bronzes, and pottery. The building was begun in 1823, and was opened on the 3rd of August, 1829. In front of this edifice is a colossal vase, chiselled

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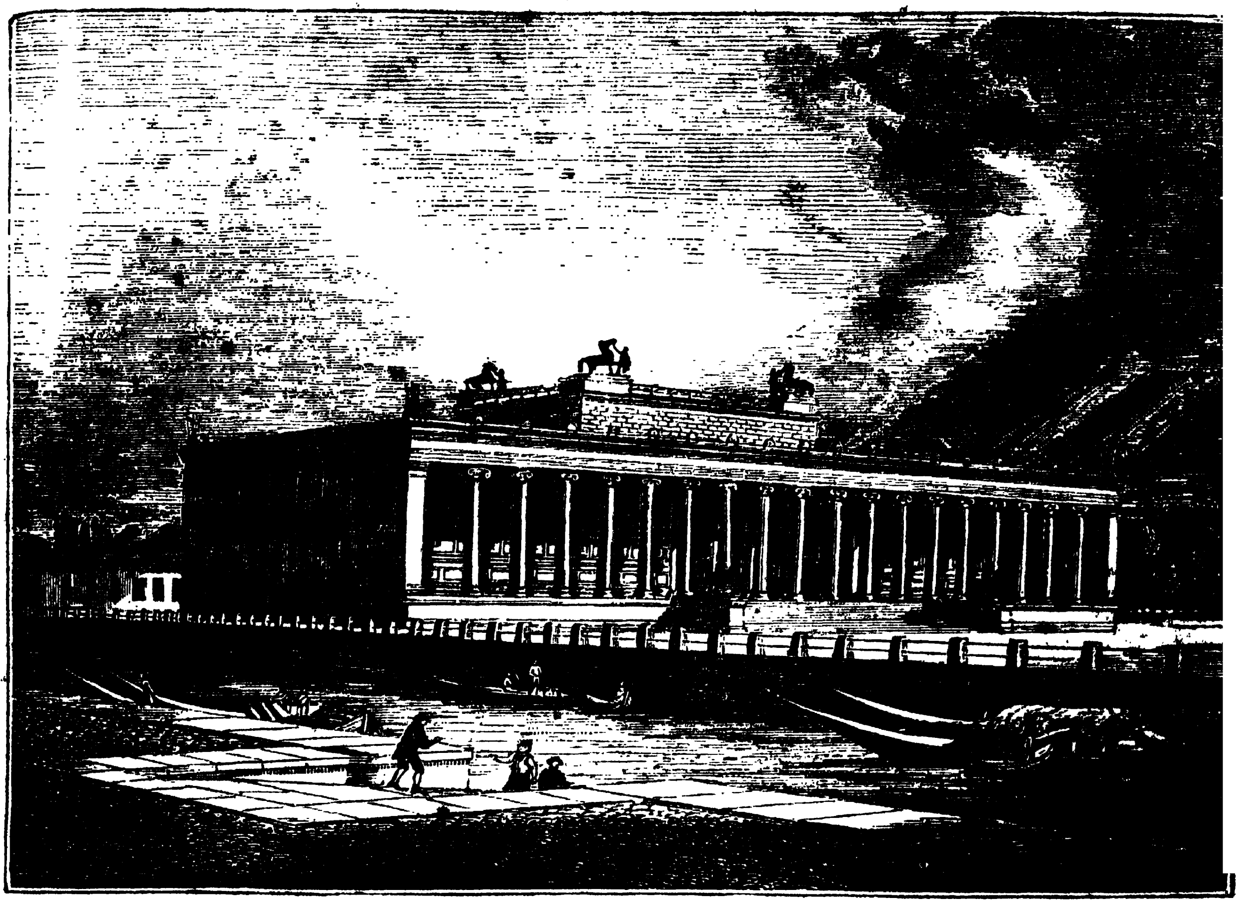
[*] Our numbers are taken from Dr. Hörschelmann's statement (1834), which is borne out by other Berlin writers. The 'Report of the Statistical Bureau,' in Berlin, on the other hand, states the number to have been 11,971 even so far back as the year 1828.



[Berlin Royal Museum.]

out of native granite, 75 tons in weight, resting on a handsome pedestal. The quarter of Old Cologne also contains the cathedral, 337 feet in length and 136 in breadth, with the places of sepulture of several members of the royal family; the Royal Exchange; the Bridge of the Palace, built on two arches; the King's Stables; the Armoury; the Townhall for the quarter, in which the deputies of the town assemble; the Royal Cologne Gymnasium, with 360 pupils, &c. That part of this subdivision which is called New Cologne contains the Royal Salt Magazine (Salzhof), in which are storehouses for salt and mill-stones.

The north-western part of the Cologne quarter is separated by a canal from the Friedrichswerder quarter. This district contains the Principal Mint (Haupt-Münze); the Prince's House, in which the Royal Frederick Gymnasium is at present established; the Address Haus, where money is advanced on pledges; the Royal Bank; the Huntsmen's House (Jägerhaus), in which are the offices and apartments for the Consistory; the Palace Court, with a prison for offenders of higher rank; the College, or French Gymnasium, combined with a theological school; the Tax Office for the metropolis; the Palace of the Princes, which is inhabited by Prince Charles, the king's third son, and the princess of Liegnitz, the morganatic consort of his Prussian majesty, whose apartments are connected by an arched passage with the apartments in the royal palace, where the king now resides; the Werder Church, a handsome edifice, built in the old German style after the designs of Schinkel; a splendid Arsenal, forming a square, each side of which is 286 feet in length, and containing, among other things, models of eighteen fortresses in France in alto-rilievo; the Royal Foundry; and the Royal Guardhouse in the King's Square, a quadrangular structure designed by Schinkel, in the style of an antient castrum, close to which are colossal statues of Scharnhorst and Bülow, two celebrated commanders in the campaigns between 1812 and 1815. A handsome monument of bronze erected to Prince Blücher, consisting of a statue, which, with its plinth, is 11 feet, and an appropriately-decorated pedestal, which is thirteen feet high, the work of Rauch, stands between the Royal Palace and the Opera House. On the front side of the pedestal is an alto-relievo of Victory bearing a tablet between her hands, with the following inscription:—'Frederick William III. to Field-Marshal Prince Blücher of Wahlstatt, in the year 1826.'

The Dorotheenstadt, or new town quarter, lies to the north of the preceding, between the Friedrichswerder quarter and the northern bend of the Spree. Its most striking feature is the celebrated street called Unter-den-Linden, which contains two double lines of linden or lime-trees: it is 2744 feet in length, 174 feet in breadth, and affords the most attractive promenade in Berlin. This quarter likewise contains the northern part of Frederick's Street, which runs in a straight line of 4250 paces (upwards of two miles), from the Place of the Belle Alliance at the most southern, to the Oranienburg Gate, which lies nearly at the most northern end of the capital. The principal objects in the Dorotheenstadt are the University Buildings, with columns and pilasters of the Corinthian order, which contain lecture-rooms, and museums of anatomy, zoology, mineralogy, &c., and a garden; the Opera House, with a handsome range of fluted Corinthian columns, 266 feet in length, and 106 in width, three rows of boxes, and accommodation for 3000 spectators; the Catholic Church of St. Hedwig, an imitation of the Pantheon in Rome; the Royal Library, facing the Opera House, the principal apartment in which is 263 feet long, and 59 feet broad, with more than 400,000 volumes, besides manuscripts; the Vocal Academy; the Royal Academy, containing halls and rooms occupied by the Academies of the Arts and Sciences, and a clock, illuminated at night, according to whose time every public clock in Berlin is regulated; the Observatory, a lofty quadrangular tower, raised on a platform 86 feet above the pavement; the School for the Artillery and Engineers; the Paris Square, on the west side of which the Brandenburg Gate opens, and the east side of which opens on the Unter-den-Linden. The Weidendammer Bridge, which is wholly of cast-iron, and with a flat road-way, rests on two arched openings at each end, with a passage for boats in the centre, about 27 feet wide. This bridge leads to the Voigtland suburb northwards across the Spree: it is 180 feet in length, about 35 in width between the balustrades, and weighs 400 tons.

To the south of the Dorotheenstadt lies the Frederick's Town quarter, the largest in Berlin: the western part of it is traversed in its whole length by the handsome street called William's Street, which is nearly 9200 feet long, and terminates in the Place of the Belle Alliance, the northern side of which opens into Frederick's Street, and the north-eastern into another handsome street called Linden Street, from the row of limes which runs on each side of it. The octagonal Place of Leipzig, the west side of which opens to the Potsdam Gate and the east to the fine Street of Leipzig leading eastwards through the whole of Frederick's Town, contributes also to the embellishment of this quarter. The other principal objects are the Dönhoff Square, with its obelisk or milliarium, from which all the post-office distances are measured; the Royal China Manufactory; the Gymnasium of Frederick William, with a 'real-schule,' or school for practical acquirements; the Collegien-haus, which is the seat of the law commission, the supreme judicial court, the senate and deputies of the chamber of justice (*Kammergericht*), &c.; the Ansbach Palace, at present appropriated to the Louisa Foundation, a seminary for the education of female children; the Palace of the Minister of War, to which a fine garden is attached; the Palaces of Princes Frederick and Augustus, and Prince Radzivil, and of the Minister of Justice; the Manufactory of Gold and Silver Works; the Palace of the antient Knights of St. John, in which is the equestrian hall ornamented with the portraits of many of the grand-masters and commanders of the order; William's Square, about 570 feet long, and 270 broad, planted round with limes, and embellished with statues of Schwerin, Ziethen, and three other celebrated commanders in the thirty years' war; the Gend'armes Square, on which stand the New and the French Churches with their handsome towers, one of which is 230 feet high; the Theatre, and the handsome Concert-room attached to it, altogether 250 feet long, and 216 wide; the See-handlung (Maritime Trade) Company's House; and the house of the Society of Naturalists. Outside of the Halle Gate, which leads into the Place of the Belle Alliance, is the Kreutzberg, on which stands the military monument erected in 1820: this consists of a turreted Gothic superstructure of iron, with twelve chapels or recesses beneath it, which are dedicated to the memory of the twelve principal battles fought in the campaigns of 1813, 1814, and 1815, and over which the following inscription has been placed:—'The sovereign to his people, who, at his summons, magnanimously poured forth their blood and treasure for their country. In memory of the fallen—in gratitude to the living as an excitement to every future generation.' It is supported on a substructure of stone, raised on a terrace 80 feet in diameter, and commands a view of the country for more than 30 miles round. On the Kreutzberg, also, are the beautiful grounds called Tivoli.

Immediately adjoining the north-eastern part of the quarter of Berlin lies the suburb called the Königsstadt, or Konig's Vorstadt (the latter word implying a suburb). In its whole length north-eastwards, from Alexander Square to the King's gate, which is one of the outlets through the city walls, it is traversed by the König's Strasse or King's Street, 3660 feet long, and of recent construction; the square just mentioned opens into it. This suburb contains the Königsstadt theatre, 153 feet long and about 78 wide, built in 1824, and calculated for 1600 spectators; the House of Industry, at the south end of Alexander Square, where the indigent who are disposed to work are lodged and boarded; the Royal Institute for the Blind; the Asylum for 400 poor children, set on foot by the late Professor Wadzeck in 1810, and bearing his name; the Alexandrina Asylum for 24 girls; the Büschingsche Garden, in which Büsching, the geographer, is interred, with his first wife and five children; the Eckartstein manufactory of earthenware, and the Döring works, in which sulphuric, muriatic, and other acids are manufactured; the Lazareth and Hospital; an Asylum for widows, &c.

To the south-east of the Berlin quarter is the Stralau suburb, through which runs the Great Frankfort Street, 5508 feet long, between rows of limes to the Frankfort Gate, the most eastern passage through the walls. There are a number of large manufactories in this part of Berlin, among which we may notice several sugar refineries, a paper-mill, in which 100 reams are made by machinery every day, and Baron von Kottwitz's House of Voluntary Industry; besides a variety of private gardens, &c.

On the opposite bank of the Spree lies the Luisenstadt suburb, which is principally filled with gardens and fields. The eastern side of this suburb is traversed by the Köpenick Street, 8982 feet in length, which terminates at the Silesian Gate. It likewise contains the Dresden Street, 5580 feet long, which leads to the Cottbus Gate, the Military Equipment Magazines (*Armatur Magazin*), Public Granary, Waggontrain Establishment, the Dunnenberg Cotton Factory, the Church of Louisa, &c.

At the north-western extremity of the Prussian capital is the Spandau suburb, which is bounded on the south by the left bank of the Spree, and on the south-east by the Berlin quarter. Its eastern and western districts are respectively intersected by two long streets, the Linien and Oranienburger; the first-mentioned of these districts is connected with the Cologne Quarter by the Monbijou bridge (also called Frederick's Bridge or the bridge of Hercules), on which stand four large statues and two fine groups in stone representing Hercules encountering the Centaur, and the same god on the point of tearing the Nemean lion in pieces. This suburb contains the royal palace of Monbijou, the residence of Prince Charles of Mecklenburg Strelitz, the king's brother-in-law, with handsome gardens, pavilions, hothouses, &c.; the Veterinary School, an admirably arranged establishment, with lecture-room, amphitheatre, garden, laboratory, and infirmary, &c.; the great Hospital of La Charité, which makes up 800 beds, and is connected with the Clinical Institution, and has 45 windows in front, a wing at each end, and three stories; the Church of St. Sophia, the tower and steeple of which are 230 feet in height; the New Mint; and the Asylum for the Deaf and Dumb. On the right hand of the street leading from the Oranienburg Gate, and outside of the walls, is the celebrated Iron Foundry, in which beautiful trinkets and other small articles are manufactured. Further to the left stands the Royal Hospital for Invalids, consisting of a main building and two wings, and a separate church for Protestants and Roman Catholics, which maintains nearly 1000 soldiers, females, and children: over the front is inscribed 'Læso et invicto militi.' At some distance beyond this establishment are the Louisa Baths, embellished with gardens and walks.

In addition to the foregoing subdivisions of Berlin, a plan has been laid down for erecting a new quarter of the town on the extensive plot of ground called the 'Köpenicker Feld,' which lies immediately within the southern walls, and between the right bank of the Spree and Frederick's Town. This plot occupies an area of about 1000 acres, and when fully covered will contain thirty-one streets, eighteen squares, two churches, and a canal from the right bank of the Spree to the Sheep's Fosse. A commencement has already been made towards carrying this extensive plan into effect. The town is extensively lighted with gas, supplied by the works erected by the Imperial Continental Gas Company in London, under the superintendence of Mr. Perks.

Berlin is the seat of civil and military government for the whole kingdom, and, as will be inferred from our description of its several districts, abounds in literary and scientific establishments, which, where there is need, are liberally supported by the government. The university, founded in 1810, and designated the University of Frederick William, after the present sovereign, contains above 120 professors and teachers, and is attended by upwards of 1700 students. Berlin has also four royal gymnasia or high schools, several public seminaries for scholars, civic and rural schools, the 'Louisa Foundation' for educating female teachers, nearly 260 private schools, academies of the arts, sciences, and mechanical pursuits, schools of design, an academy of architecture, district schools for mechanics, two superior civic schools, twenty-nine public libraries, valuable collections of machines and models, societies of natural history, geography, statistics, horticulture, medicine and surgery, pharmacy, philomathics, experimental philosophy and medicine, and the amelioration of prison discipline. There is a parent Bible Society, with more than forty auxiliary establishments, and a central association for the circulation of religious books in the Prussian territories; a 'Society of Friends of the Arts,' another for the education of deserted children, the number of whom received into the House of Industry has amounted to 295 in three years; and other societies for cultivating the German language, promoting Christianity among the Jews, and for converting the heathens in the East Indies and Africa; Humane Society, &c. To these we add the Frederick's Institute for educating sixty soldiers' children, several schools of industry for children, a number of Sunday schools; a bank for savings, which has thriven rapidly, and in 1832 had 23,000 depositors, with deposits to the amount of 805,801 dollars, or 110,750*l.*; and various associations for the relief of the poor. There is a large number of hospitals and other benevolent asylums, such as the Royal Institution for providing for widows, the great Hospital for Invalids, the Hospital of St. Dorothy, the new Royal Hospital, that of the Holy Ghost and St. George, Frederick's Hospital, the 'Charité' Hospital (with an income of 9500*l.* a year), twenty other establishments of a similar kind, asylums for widows and destitute persons, and four orphan institutions, besides private charities of all descriptions.

Berlin, in the year 1620, had only 10,000 inhabitants, and in 1688 not more than 18,000; and even one hundred years ago the population was not one-fourth of its present number. In 1721 the inhabitants amounted to 53,355, and in 1775 they had increased to 135,580. During the present century the increase has been much more rapid; from 157,696, in 1811, they rose to 178,811 in 1817; in 1828 to 236,850, and in 1831 to 246,475, including about 16,000 military and civilians attached to the military department. At the close of last year (1834), their numbers were estimated at about 252,000, among whom were 4700 Roman Catholics, and 4500 Jews. At this date the number of private houses was said to be about 7600. The births in 1834 amounted to 4907 males and 4651 females, in all 9558, and the deaths were 9278; hence the increase of population by birth seems to have been but 280 souls. In 1833, the excess of births over deaths was 1401. The births of illegitimate children amounted to 1491, namely, 736 males and 755 females, being nearly one-sixth of the entire number of births; and of these, 771, more than one-half, died soon after they were born. The births of 1831 exceeded those of 1832 by 1051. The patients admitted into the hospital La Charité, the largest in the Prussian dominions, amounted, in 1833, to 6697, including 728 who were in it on the 31st December, 1832. The number of offenders committed to the town prison (*Stadtvogtei Gefängniss*) in 1833 was 9900; namely, 7470 males, and 2430 females, or about 1 in every 26 inhabitants.

The members of the Lutheran persuasion possess fourteen churches, those of the reformed Lutheran seven, of the reformed French four, and of the Roman Catholic two. The building of additional places of worship is rapidly advancing; one of them indeed has already been opened. The Lutheran and reformed clergy are under the control of four superintendents, of whom three are Lutheran, including a bishop, and one reformed Lutheran.

Berlin is one of the first manufacturing towns in the Prussian dominions. Its chief productions are the celebrated Berlin china, silks, silks and cottons mixed, woollens, cottons, stockings, and ribbons; and next in order are gunpowder, cast-iron ware, silk hats, paper, oils, refined sugars, and tobacco and snuff. In 1831 the number of mechanics and manufacturing artists was 7782, besides 11,207 assistants and apprentices. Berlin at that time had thirty printing houses and 110 presses, 5729 looms in activity, 2762 traders and dealers, 177 waggoners and 994 horses in their employ, 102 hotels and taverns, and 913 masters of eating and drinking houses. The amount of the tax on tradesmen, mechanics, &c., of all classes (called the *Gewerbesteuer*), was 135,607 dollars, or about 18,650*l.* Berlin is a place of extensive commercial dealings; at the head of its public mercantile establishments are the Royal Bank, the Royal Company for Maritime Commerce (*See-handlunggesellschaft*), the Cash Association (*Cassenverein*), which was founded in 1823, and issues notes of 1000, 500, &c., dollars, an insurance company against hail-storms, and two fire insurance companies. There is a wool market, the yearly sales in which amount to nearly 280,000*l.* sterling.

The magistracy consists of twenty-five individuals, who administer the local affairs of Berlin with the assistance of the assembly of deputies. Among the various items of which the town revenues consist, the tax on houses and rents amounts to about 53,000*l.* The expenditure for the year 1832 was 1,092,000 dollars, about 150,150*l.*, of which 238,288 dollars, about 32,765*l.*, were applied to paying the interest and redeeming the principal of the town debt, which amounts to about 550,000*l.*, and 297,000 dollars; about 40,840*l.* were expended on the poor, partly in relieving 3057 orphans and children, in the maintenance of about 790 offenders in the house of correction, and the support of 278 aged persons in the new hospital: gratuitous instruction was likewise provided for 8932 children; 1740 patients were sent to the La Charité hospital at the cost of the town, and 23,779 sick persons were attended in their dwellings, while 4559 poor received regular allowances and about as many casual relief. At the close of the year there were about 600 prisoners in the town prison.

Besides three theatres, concert-rooms, public gardens, &c., there are several spots in the vicinity of Berlin to which the inhabitants resort for amusement. The principal place of this kind is Charlottenburg, a town about two miles and a half distant, where there is a royal palace with extensive pleasure grounds; but the great attraction of the place is the fine mausoleum of Queen Louisa, the late beautiful and unfortunate wife of the present sovereign, to which numbers make their pilgrimage on the 19th of July, the anniversary of her decease. About an hour's walk beyond Charlottenburg lies the town and fortress of Spandau, at the confluence of the Spree and Havel; and about ten miles from Berlin, in the same direction, is the islet of Pichelswerder, in the Havel, which is laid out in walks. A forest in its neighbourhood is ornamented with the Grunewald, a royal hunting seat. Beyond the Halle Gate are the villages of Tempelhof, where there are two fine gardens, and Gross-Beeren, with a monument in commemoration of the celebrated battle fought there between the Prussians and French on the 23rd of August, 1813. A variety of similar points of attraction exist in the other outskirts of the city; for, although it stands in the midst of a sandy plain, there are few spots where the sterility of the soil is not concealed by a high state of cultivation.

The origin of Berlin is uncertain; but it seems probable that the two villages of Berlin and Cologne (*Köln*) became towns in the times of Margrave Albrecht II., between the years 1206 and 1220. His successors surrounded these towns with walls, and they seem to have attained a somewhat prosperous state about the period of the extinction of the Anhalt line in 1319. But the disasters which befel them during the succeeding hundred years again reduced them to insignificance. They revived, however, upon the accession of the house of Hohenzollern to the Brandenburg dominions in 1417. The Burg, built by the elector Frederic II. about 1448, was the site of the present royal palace; and Berlin became the residence of its princes under John, who died in 1490. It rose rapidly into importance during the long and brilliant career of Frederick William, the great elector, between the years 1640 and 1688. This prince enriched it with several scientific establishments and collections, and his successor, Frederick III., who afterwards assumed the kingly title, trod in his steps; he was the founder of Frederick's Town, the handsomest quarter of Berlin, and in 1709 conferred the designation of Royal Residence Towns on its respective districts. Even Frederick William I., in spite of his parsimonious habits, did much to embellish it, and also levelled many of the walls and ramparts which obstructed his improvements. Far more, however, was done by Frederick II., his son, from whom Berlin derived nearly the whole of its present form. Both his successors, particularly the present king, have largely contributed to render this city what all must acknowledge it to be,—one of the finest in Europe, as well for the symmetry of its plan as the beauty of its construction.

BERME, in fortification, is a kind of terrace formed at the foot of a parapet on the exterior side: it is generally in a horizontal position, about the level of the natural ground, and it separates the escarp, or that side of the ditch which forms the face of the rampart, from the outward slope of the parapet.

The berme prevents the earth constituting the parapet, when that work is damaged by rain or otherwise, from falling into the ditch; its breadth is usually from two to three feet, and the ditch being at that distance from the foot of the parapet, the pressure of the latter against the escarp wall is in some measure diminished, a circumstance of considerable importance when the soil has not much tenacity. If the berme on the exterior of a bastion or ravelin is from ten to fifteen feet broad, it takes the name of *chemin des rondes*, and serves as a path for the officers superintending the troops who are on duty in the opposite covered-way. It may also be useful as a station for the defenders, when they would oppose any attempt at an open assault by preventing the enemy from planting his scaling-ladders against the face of the escarp; communications being made to it from the interior of the work by passages through the parapet. It should be protected on the exterior by a hedge or a low wall, and the latter might be pierced with *loop-holes* for the defence of the ditches and covered-way.

Vauban. in his treatise on the defence of places, ascribes great importance to the *chemin des rondes:* he observes, that the ruins of the parapet, produced by firing at it from a distance, being retained on this part of the work, increase the height of the escarp, and thus compel the enemy, if he would form a practicable breach, to establish his batteries on the crest of the glacis, in order that he may be enabled to fire at or near the foot of the wall. A broad berme is, however, liable to some defects, for its protecting wall is easily destroyed by the enemy's batteries, and it causes the rampart to be wider than is in some cases convenient. Moreover, if the enemy should succeed in gaining it by an escalade, he might form there in good order, and mount the parapet in force. It must inevitably happen, also, that the missiles which the defenders might attempt to throw from the parapet upon the assailants while in the ditch would be intercepted by the berme. Vauban himself states that, at the siege of Gravelines, the besiegers were enabled to blow up the rampart by a mine; the *chemin des rondes* and part of its wall, which had been accidentally left standing, preventing the loaded shells, masses of stone, &c., which were thrown by the defenders over the parapet from falling near the miner while employed in piercing the escarp. It is evident, however, that this rampart must have been entirely unflanked by the collateral works of the place.

The position of the *chemin des rondes* is indicated by the unshaded space on the exterior of the parapet along the faces and flanks of the work V, which is given in the article BASTION.

BERMU'DAS, THE, or SOMMERS' ISLANDS, are situated in the North Atlantic, 580 miles E. by S. ½ S. from Cape Hatteras in North America, the nearest point of land, and 645 miles N.E. of Atwood's Keys, the nearest of the West India Islands. The name Bermudas is derived from the supposed discoverer, Juan Bermudez, a Spaniard, who is said to have touched there in 1522; or, as it is in May's account, from a Spanish ship called Bermudas being cast away there. The first printed account of them in English seems to be by Henry May, who being on board a French ship, commanded by M. de la Barbotier, was wrecked on them in 1593. (See May's account in *Hakluyt;* and in the *Generall Historie of Virginia, &c.*, by Captain John Smith, London, 1629.) The second and less common appellation is from Sir George Summers, or Sommers, who was driven upon them in 1609, on his voyage to Virginia. Sir George and his party made their way from the Bermudas to Virginia in two small cedar-built vessels, constructed by his men, of which that in which Sir George embarked did not contain an ounce of iron, except one bolt in the keel. At the time of his arrival in Virginia, the colony was much distressed by famine, and the account given by Sir George Sommers of the abundance of large black hogs (supposed to have belonged to the Spanish ship above mentioned) and other articles of provision at the Bermudas, induced Lord Delaware, the governor of Virginia, to send him back for a supply. Sir George died on his arrival at the islands, and the crew, in spite of his last orders, proceeded with the vessel to England, instead of returning to Virginia. Two sailors had been left behind at the time of the wreck, and one remained from this expedition. A quarrel arose among the three for the sovereignty of the islands, which had nearly terminated fatally. Rambling along the shore, they found a piece of ambergris, weighing about 80 lbs., and as this treasure was valueless in their present situation, they formed the scheme of sailing in an open boat, either to Virginia or Newfoundland, to dispose of it.

In the meantime, the Virginia Company, who claimed the islands as the first discoverers, sold their right to a company of 120 persons, who, obtaining from King James in 1612, a charter for their settlement, sent out sixty settlers, with Mr. More as governor. More found the sailors healthy and in good condition. The new colony was formed on St. George's Island, which was laid out and fortified; and in the course of the same year a second party arrived with supplies of all kinds, when the town of St. George was commenced.

Captain Daniel Tucker succeeded (1616) Mr. More as regular governor, during whose time, some rats, which had come on shore from the ships which had brought out the settlers, increased to such a degree, as to destroy almost every thing on the islands, even making their nests in trees; but after five years this dreadful annoyance suddenly ceased. In 1619 Tucker was replaced by Captain Nathaniel Butler, at which time the islands were celebrated for their beauty, richness, and salubrity; many of the nobility purchased plantations, and their cultivation was highly encouraged; the number of white inhabitants at this time amounted to 1000. The islands had hitherto been governed by the governor and council alone; but on the 1st August, 1620, was established, pursuant to the company's instructions from England, the General Assembly at the town of St. George. Prosperity continued to increase for many years, and was greatly favoured by the civil wars, which caused many persons of character and opulence to take refuge here, and among them the poet Waller, who celebrated the beauties of these islands in an elegant poem, 'The Battel of the Summer Islands.' Such indeed was the influx, that the number of white inhabitants at this time has been estimated at 10,000.

From this time little occurs in their history worthy of notice. The islands have always remained in the possession of the British, though, towards the close of the first American war, General Washington contemplated their capture, as a station for vessels of war, to the annoyance or destruction of our West India trade. For this purpose nothing could be more eligible, as they lie directly in the homeward-bound track.

The climate of the Bermudas is that of a perpetual spring, mild, genial, and salubrious, though during southerly winds, which are the most prevalent, the atmosphere becomes charged with a humidity unfavourable to constitutions predisposed to rheumatism, gout, or pulmonary affections. The fields and trees are always green; but the predominance of the cedar, while it refreshes the air with its fragrance, imparts its dark hue to the landscape; snow seldom falls, and rains are not frequent, though heavy while they last. The islands are, however, very subject to tempests, thunderstorms, and hurricanes, especially during the autumn, a circumstance that may be attributed to their situation on the verge of the trade-wind, where variable and disagreeable weather always occurs.

There is not an insular group on the whole globe so protected by nature from the effects of a boisterous ocean, as the Bermudas; they are surrounded by dangerous rocky reefs, extending in some parts ten miles from the islands, which render them very difficult of access. The few channels through the reef are thickly studded with coral rocks, but the water is so beautifully clear, that they are visible to the eye; and the negro pilots looking down from the bow of the vessel conduct her through the labyrinth with a skill and confidence only to be acquired by long habit.

The islands lie in a N.E. and S.W. direction, including a space about twenty miles in length, and more than six in the greatest breadth; they are all low, the highest point called Tibb's Hill, at the southern extreme of the large island, being only 180 feet above the level of the sea. There are no springs or fresh water streams in the islands, and but few wells, the water from which is brackish; each house has its own tank, to which the roof serves as a conductor for the rain, and on the island of St. George's are large tanks for the supply of shipping.

The following remarks on the geological constitution of this group are by Captain Vetch (*London Geological Transactions*, vol. i. new series, p. 172-173), and were accompanied with some specimens sent to the Geological Society. 'The specimens,' observes Captain Vetch, 'six in number, were sent me as affording all the varieties of rock to be found in these islands; and as it will appear that they are all composed of corals and shells of different magnitudes, more or less consolidated by a calcareous cement, it seems probable the Bermudas owe their existence to the accumulation of such materials on a coral reef. From the extreme narrowness of the channels that separate these islands, they may be regarded as forming but one; and in that case the length will be about thirteen miles, while the greatest breadth hardly exceeds one mile, and no spot is distant so much as five furlongs from the sea. This lengthened narrow shape, with some other peculiarities of form, gives the whole so much the character of a coral reef as almost to confirm that conjecture. When it is moreover considered that the Bermudas rise from a shoal twenty-three miles long and thirteen broad, all round which is the deep water of the ocean, while Carolina, the nearest land, is 700 miles distant, it seems difficult to ascribe the existence of such a platform, thus rising in the middle of the sea, to any other origin.

'The specimens above enumerated afford a perfect gradation from a rough and obviously fragmented rock to a limestone almost compact; and may thus be useful in pointing out the origin of some calcareous beds, in which a similarity of structure exists, but where the mode of formation cannot be traced to operations so recent and so apparent as in the Bermudas. The large-grained rock being found along the coast, and the finer-grained inland, affords a beautiful confirmation of the assumed origin of the islands, since the accumulation of such materials by surge and winds would evidently effect that disposition; and as I understand the hills nowhere exceed 200 feet in height, and are nowhere so much as five furlongs from the sea, the agents seem quite adequate to this effect.'

Including the small ones, the number of islands is very great, but the large ones may be reduced to five, viz.:—St. George's, St. David's, Long Island (or Bermuda), Somerset, and Ireland. There are two towns, each of which has its mayor and civic officers; St. George's, on the island of that name to the N.E., and Hamilton, on the large island (or Continent as it is generally called), about the centre of the group. They are both well built of white stone; St. George's, which is the larger, contains about 500 houses, a church, the town-house, in which both branches of the legislature hold their sittings, a library, and other public buildings. The whole group is divided into nine parishes, each of which sends four members to the house of assembly. The scattered houses and hamlets are so numerous, that the whole island has the appearance of one continued village.

The surrounding seas are stored with various kinds of fish and turtle, and the Bermudians are among the most dexterous of fishermen, more particularly with the harpoon. The whale-fishery is carried on at a trifling expense, and employs about twelve whale-boats and their crews three months in the year. One good fish covers the cost of the whole season, and sometimes twenty or more are taken, yielding one thousand gallons of oil. The flesh is sold in the market, and eaten by the natives. The season commences in March and ends in June; the whales approach the islands close, on the southern side, and men are stationed on the cliffs to give notice of their appearance. The fishery thus carried on is capable of very considerable extension, at small risk, by the employment of additional capital. The oysters found on the rocks sometimes contain good pearls.

The soil, which appears to have once been fertile, and capable of producing every article of West India produce, is now generally exhausted. There is scarcely any vegetable that will not grow at Bermuda: potatoes, onions, cabbages, carrots, turnips, barley, oats, peas, beans, pumpkins, melons, &c., are cultivated. The citron, sweet orange, lemon, and lime, are of good quality; and the arrow-root is said to be superior to that of any other place. The palm-tree also grows, and the leaves are exported for ladies' fans. Coffee, cotton, indigo, and tobacco, are no longer cultivated, with the exception of a little indigo; and of the 12,000 acres which Bermuda is said to contain, only 456 are under cultivation. There are 3070 acres of pasture. Live stock and flour are imported from British America. There were imported in 1832, 881 head of cattle, 1506 sheep and swine, 36,803 bushels of maize and oats, and 15,481 barrels of wheat-flour and Indian corn-meal. Fresh butter and milk are produced in sufficient quantities for the supply required, but no more cattle are reared than will keep up the stock; ducks are very abundant, and turtle during the summer; and the breed of black swine, though somewhat diminished, is still numerous. The number of stock on the islands in 1832 was 214 horses, 1731 horned cattle, 200 sheep, and 279 goats.

The principal employment is building vessels, which are generally small, swift, and very durable, being constructed of cedar. Ten vessels of the aggregate burden of 804 tons were built in 1832. Platting of straw, and of the mid-rib of the palmetto leaf, is also carried on; and a beautiful species of white freestone, easily cut, is exported to the West Indies for ornamental architecture. Vessels annually visit the Bahamas for salt.

The natives are handsome, good-natured, lively, and hospitable; the women are particularly amiable. Indolence is the great fault of the men, and prevents the colony rising to the prosperous condition which it might attain.

'Nothing,' says Mr. More, 'can be more romantic than the little bay of St. George's; the number of little islets, the singular clearness of the water, and the animated play of the graceful little boats gliding for ever between the islands, and seeming to sail from one cedar-grove to another, form altogether the sweetest miniature of nature that can be imagined. In the short but beautiful twilight of their spring evenings, the white cottages scattered over the islands, and but partially seen through the trees that surround them, assume often the appearance of little Grecian temples, and embellish the poor fisherman's hut with columns which the pencil of Claude might imitate.'

There was formerly a small dockyard at St. George's, but it has been removed to Ireland Island, on which large sums have of late years been expended, in order to render it a strong post for a naval and military depôt. The whole face of the island has been changed, hills removed and plains made, and all the ingenuity of art and the labour of a large convict establishment have been employed in strengthening this important station. This island has been selected for its convenient size and detached position, which cannot be approached except by an intricate channel along the whole coast from St. George's. It is however to be regretted, that the rocky bar which limits the passage into the latter harbour should not be deepened, to admit ships of the largest class, where cruizers not under repair might be in constant readiness.

The free population of the islands, at the census taken in 1832, was as follows:—

Parishes.	Area in Acres.	Whites.		Free Blacks and Col.		Aliens and Resident Strangers.	Persons employed in		
		Males.	Females.	Males.	Females.		Agriculture.	Manufactures.	Commerce.
St. George . .	1,580	246	349	92	146	10	133	125	43
Hamilton . .	1,651	130	191	44	43	5	47	120	10
Smith	1,281	67	125	22	23	2	18	7	4
Devonshire . .	1,281	121	227	26	48	..	43	24	36
Pembroke . .	1,281	314	471	95	158	12	82	17	48
Paget	1,281	186	285	49	54	..	114	..	81
Warwick . . .	1,281	215	310	30	37	..	199	..	81
Southampton .	1,281	127	270	56	43	..	142	16	51
Sandy	1,507	201	343	44	58	15	1,175	47	123
In all nearly 20 square miles.									
Total . .	12,424	1,607	2,574	458	610	44	1,953	356	477

The number of slaves in the same year, according to the official registry, was—males, 1967; females, 2182; total, 4149.

About 1000 convict labourers sent from this country are employed in constructing a breakwater, and in perfecting the fortifications at Ireland Island. These works have been in progress since 1824, and it is expected will be completed in about four years from this time, when the convicts will be withdrawn, it not being intended to make Bermuda a penal settlement.

There are twenty-three public or free schools in the islands. One of these, in Devonshire parish, is a classical academy, at which twenty-five scholars are instructed at an expense of 600*l.* per annum, paid out of a trust fund in the colony. There are nine day schools: four of them contain 99 white children; in the other five 158 coloured children are taught; the remaining thirteen are Sunday schools, five for white and eight for coloured children, the number of scholars being 229 and 303 respectively. These schools are supported principally by different societies in England, and by funds under the control of the bishop of Nova Scotia, in whose diocese the Bermudas are situated. Only two day schools are supported by local subscriptions. There are, besides the above, twenty-five private schools, the number of scholars in which is unknown.

The islands contain nine churches, one of which is in each of the parishes as named above. There are also five chapels for Dissenters.

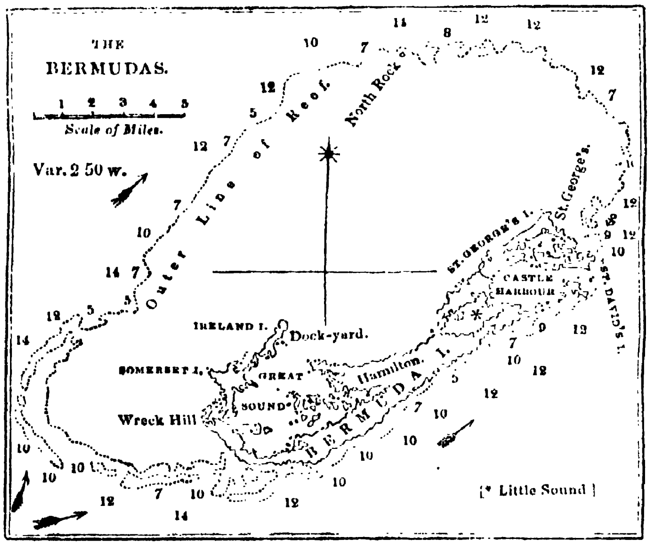
The following table exhibits the number of shipping that visited the islands, for the purpose of trade, in 1832:—

Places.	Inwards.			Outwards.		
	Ships.	Tons.	Men.	Ships.	Tons.	Men.
Great Britain	8	2,052				
British Colonies	76	6,502		102	9,118	
United States	65	6,995		48	5,501	
Foreign States	6	708		13	1,522	
Total	155	16,257	1,049	163	16,441	1,080

The imports, in addition to those already mentioned, consisted principally of British manufactures, lumber, and ships' stores. The exports, with the exception of a small quantity of arrow-root and hides, were chiefly composed of colonial produce previously brought from the West India Islands. The total value of imports was 102,742*l.*, and of exports 13,784*l.* sterling money.

The government of Bermuda is modelled after that of Great Britain, the concurrence of the governor, council, and legislative assembly, being necessary to give to any public measure the force of a law. The governor, who is also commander-in-chief of the forces, has the power of summoning and dissolving the Legislative Assembly, and its enactments are of no force unless he confirms them. The Council is composed of eight members and a president: they are nominated by the governor, but the appointment must be confirmed by the crown. The House of Assembly consists of thirty-six members, who are returned by the nine tribes or parishes into which the island is divided. All laws must originate in this house. While the session lasts, each member that attends receives two dollars a day. The qualification for a member of this assembly is the possession of landed property worth 200*l.* currency per annum, and an elector must possess landed property worth 40*l.* currency (30*l.* sterling) per annum. The courts of law are also modelled after those of England; the offices connected with the administration of justice are held exclusively by natives, who have generally been called to the English bar, although this is not indispensably necessary.

All accounts are kept in the colony in a currency, the par of which is an advance of fifty per cent. on sterling money, 100*l.* sterling being of equal value with 150*l.* currency. The gold coins in circulation are Spanish doubloons, and its fractional parts. The silver coin is now principally that struck in England, but Spanish dollars pass at the rate of 4*s.* 4*d.* sterling each. The weights and measures used are according to the old English standards.



Wreck Hill (the western point of the group) is in 32° 15′ 20″ N. lat., and 64° 50′ W. long. It is high water at the dock-yard, full and change, at 8 hours. Rise in the springs 5 feet, neap 2 or 3 feet. (Account of the Bermudas in Captain John Smith's *General History of Virginia, New England, and the Summer Isles*, Lond. 1629; Bryan Edwards; *Colombian Navigator*, &c.) [See BERKELEY, BISHOP, for an account of his intended college in the Bermudas.]

BERN, CANTON OF, the largest and most populous canton of Switzerland, extends about 85 miles from N. to S., from the frontiers of the French department, of the Haut Rhin, to the high chain of Alps which divides the southern valleys of the Bernese Oberland from the canton of Valais. Its shape is very irregular, like that of most Swiss cantons, and its breadth therefore varies considerably, being greatest in the southern part of the canton, between the frontiers of Uri and Unterwalden to the east, and those of Vaud and Freyburg to the west, where it is about 60 miles; more northwards, between Luzern and Freyburg, it is not quite 30 miles in some places: it then widens again north of the city of Bern, extending about 60 miles from the frontiers of Luzern to the river Doubs, which forms its western boundary on the side of France; but here part of the canton of Soleure projects into the Bernese territory, and intervenes in the line of its breadth. Its area, according to Franscini's *Statistics* (1827), is 9474 square kilomètres, or about 3662 English square miles (about twice the size of Lancashire), and its population 380,000 according to the census of 1831. (See *Report on the Poor Laws.*) The southern part of the canton is very mountainous, consisting of high valleys between the offsets of the chain of Alps which divides it from the Valais and from Uri and Unterwalden. Farther north, and round the city of Bern, the ground, although hilly, is not rugged, and consists of pleasant fertile valleys, and some level tracts. The most northern part, beyond Bienne, which formerly constituted the territory of the bishop of Basel, is almost entirely covered by the various ridges and offsets of the Jura Mountains up to the frontiers of France.

Some of the higher summits of the Jura, in the Erguelthal, are nearly 5000 feet above the level of the sea. The loftiest mountains of the canton of Bern, and the only mountains of primitive formation, are in its southern part, and belong to the great Alpine chain already mentioned. The Schreckhorn rises nearly 13,000 feet above the level of the sea, and the Wetterhorn, in the same neighbourhood, about 12,000. The Jungfrau, 13,716 feet, and the Finsteraarhorn, 14,109 feet, are in the same chain, but they are partly in the canton of Bern and partly in that of Valais. Extensive glaciers cover the sides of these mountains, and are known by the name of the Glaciers of Grindelwald and Lauterbrunnen, from the names of two valleys which are much frequented by tourists in summer.

The principal river of the canton of Bern is the Aar, which has its sources in the glaciers of the Finsteraarhorn, waters the valley of the Ober Hasly, crosses the Lake of Brienz, and afterwards that of Thun, passes under the walls of Bern, forming the peninsula on which that city is built, and then winding first westwards and then northwards, enters the canton of Soleure. The other rivers of the canton of Bern are affluents of the Aar. The principal are the Emmen, which waters the fine and rich valley called the Emmenthal, passes by Burgdorff, and enters the Aar below Soleure; the Simmen, from which the district called Simmenthal takes its name, empties itself into the Lake of Thun; the Thiele, which is the outlet of the Lakes of Neuchâtel and of Bienne, issues out of the latter at Nidau, and falls into the Aar after a short course. The Saane, whose course runs chiefly through the canton of Freyburg, has its source in the Gsteig, in the canton of Bern, and after crossing Freyburg, enters again the canton of Bern at Laupen, and falls into the Aar above Aarberg. In the north-western part of the canton, or former bishopric of Basel, the only river deserving the name is the Birs, which has its source in the Münsterthal, and running northward enters the canton of Basel, where it joins the Rhine.

The climate of the canton of Bern, and the produce of the soil, vary greatly according to the nature of the ground and the position of the valleys. The Oberland, or southern part, is very cold in winter: cattle forms the chief property of the inhabitants, who are mostly poor. The Simmenthal is the best valley in this district. The central part, near Bern, the country between the Aar and the Emmen, and east of the latter river towards Luzern, constitute the finest and most fertile part of the canton, and produce corn, fruits, and rich pastures. The farms are extensive, the farmers wealthy, and their houses, built mostly of wood, are roomy and comfortable. It is the richest agricultural district in Switzerland. Any traveller passing along the high roads from Aarau or Soleure to Bern, from Luzern to Bern by the Sumiswald, and from Bern towards Morat or Thun, may perceive, from the appearance of the houses and the fields, the people and their cattle, that industry and comfort are generally diffused.

'The farm-houses in the Emmenthal have more even than the usual amplitude of roof, and appear to contain within their wooden boundaries, and the supplementary space over which the immense thatch spreads itself, every kind of country comfort, and all the rustic and appropriate litter of the Bernese cottages: milk-pails freshly scoured, and ranged in the sun; wood piled up, or herbs spread out to dry; here an array of bee-hives, there an accumulation of rakes, barrows, and all the implements of husbandry; and everywhere a profusion of marguerites and hollyhocks, giving to the little gardens a gay bloom. There is in this country a prodigality of horned cattle, and, what a passer-by can better appreciate, pleasant villages. Cream, honey, and butter, are the overflowings of the land.' (*Slight Reminiscences of the Rhine, Switzerland, &c.*; by a Lady, London, 1834.)

'Whichever side one looks to (says another traveller on the road from Thun to Bern), the appearance of ease and comfort meets the eye—a result of the fertility of the soil, an intelligent husbandry, and of the habit of order which characterizes the Bernese peasant. A multitude of dwellings, scattered over the smiling hills, are seen through the foliage of the trees, and on each side of the road, behind thick hedges carefully trimmed, rises a row of cherry-trees, high and with wide-spreading branches. Here property is sacredly respected, as almost every family is possessed of something. The farm-houses have a substantial appearance which is pleasing to the eye: many of them which are below the level of the road have a sort of draw-bridge, by means of which carts are enabled to drive to the hay-loft or granary, and deposit there the hay or sheaves of corn from the fields. Fountains are seen spouting on every side, and even in the arrangement of the manure-heaps a tidiness and cleanliness are observed, which are features of the national character. . . . Many of the wealthy Bernese peasants ('hof-bauern') hold from 200 to 300 jucharts of land (the juchart is 40,000 square French feet), besides possessing considerable capital in money, which enables them to practise farming and the rearing of cattle on a large scale. Almost all of them have received elementary education, and they constitute the notables of their respective villages and districts. They enjoy considerable local influence, and are in a manner the lords of the country: they shoot on their lands, fish in their own streams and ponds, and are able to give employment to their poor neighbours. The lowest rank of the country people, called Hausler, or Täuner, are cottagers and journeymen, who have a small house or hut, with a patch of ground or garden, and a few fruit-trees. They are rude and uninformed, improvident, and generally in debt: they marry very young, and rear up swarms of children who go about begging or pilfering. This class is of course dissatisfied, and is generally at variance with the wealthier inhabitants. Since the Revolution of 1830 their numbers have given them considerable influence at the elections, especially as the great landholders have withdrawn themselves from politics. Between the Täuner and the Hofbauern there is an intermediate class of peasants or small proprietors, possessing from ten to forty jucharts, and this class is said to be the most moral of the three.

'As one approaches the capital of the canton, the number of country houses built of stone, and belonging to the wealthy citizens, increases. They are neat and rural, without any refinement of architecture, but substantial and spacious, enjoying a fine prospect, in the midst of fine trees and grass-plots, a profusion of flowers, and an abundance of fountains.' (Walsh's *Voyage en Suisse et en Lombardie*, 1834.)

The roads through the canton of Bern are wide, well constructed, and kept in excellent repair. The mails and the diligences, or stage-coaches, are also very well organized. The inns on the road are good. It has been observed that the roads and the public buildings are the only magnificent works in the canton of Bern.

The canton is divided into districts or prefectships, formerly called bailiwicks, of which there are twenty-two in the old territory of Bern: namely, Bern, Seftigen, Nidau, Aarberg, Fraubrunnen, Burgdorf, Wangen, Aarwangen, Trachselwald, Signau, Konolfingen, Thun, Interlaken, Laupen, Erlach, Buren, Obersimmenthal, Niedersimmenthal, Saanen, Frutigen, Oberhasli, and Schwarzenburg; and six in the territories acquired in 1815: namely, Bienne, Neuveville, Porentrui, Delemont, Val Moutier, and the Erguel. The towns of the canton, besides Bern, are—Bienne, Burgdorf, Thun, Porentrui, and Delemont.

The canton of Bern produces corn, though not sufficient for the consumption of the population, but fruit in abundance, especially apples, pears, plums, nuts, and cherries. From the cherries the spirit called kirschwasser is made, which, as well as the extract from absinth or wormwood, are articles of common use, as in the rest of Switzerland. Beer and cider are made in the country. The vine thrives in a few districts, chiefly in that of Nidau near the lake of Bienne, where wine is made. Hemp and flax are also among the products of the soil; but cattle and the produce of the dairy constitute the chief wealth of the country; cheese is made in abundance for exportation, especially in the valleys of Emmenthal, Simmenthal, and Gessenai or Saanen. The use of coffee and sugar is universal even in the most secluded valleys. Irrigation and the making of artificial meadows are much followed in the valleys, and the mountains afford summer pasture in abundance. There are dairies in common, where the milk of several herds is put together and made into butter and cheese. In 1819 there were about 158,000 heads of horned cattle in the canton of Bern: some of the races are among the largest and finest in all Switzerland. The number of horses in the same year was 25,000. That of pigs was reckoned at about 55,000. (Franscini, *Statistica.*)

The land in the canton of Bern, as in most other parts of Switzerland, is divided equally among all the children. When the farmers are in good circumstances, the law of inheritance does not produce a too great subdivision of land, as one of the sons generally purchases or rents his brothers' shares, or the brothers continue to live together and cultivate the farm in common. In the Emmenthal the land descends to the youngest son, who pays his brothers and sisters their portion by mortgaging the estate. But in the poorer districts, such as the Oberland, the increase of the population, the minute subdivision of property, and the consequent practice of raising money by mortgages, have reduced the population to beggary. M. Kasthofer asserts, that it would be difficult to find in all Oberland twelve peasants who possess twenty arpents of land in cultivation, or such an extent of meadow as would winter twenty cows. The number of cows has consequently diminished, and that of goats has increased. A custom which has tended to encourage early marriages exists in many communes, that of giving to a young man, on his marrying, a portion of the common land, besides other privileges, which he could not possess as a bachelor. Poor laws were established in the canton of Bern in the seventeenth century, at a time when numerous hordes of beggars were strolling through the land, and had become a great nuisance. The communes were ordered to tax themselves in order to provide for their respective poor. This compulsory system of relief, which closely resembles that of the English poor laws, has tended to perpetuate and increase pauperism in the country. The cantonal government has endeavoured to check the evil by various ordinances, one of which forbids any person who receives assistance from marrying without the permission of the municipal council of the commune; the commune may also oblige any person whom it has once assisted to reimburse the amount of the relief whenever he becomes able to do so. Persons assisted are subject to a strict superintendence of their conduct, &c. Pauperism, however, has been fast increasing: in the year 1828 there were nearly 26,000 persons receiving assistance in the old canton of Bern, about 1-16th of the population (the districts in the Jura not included). See an interesting report from Bern, communicated by Mr. Morier in the *Appendix (F) to the Report of the Poor Laws Commission*, February, 1834. The government of Bern is now occupied with a plan of reform for the poor laws.

The canton of Bern is not, properly speaking, a manufacturing country. Linen is made in many places, sufficient for the internal consumption: there are tanneries at Bern, as well as a few manufactories of silks, coarse woollens, and paper. Mathematical instruments, watches, and jewellery, muskets, and other arms, are made at Bern, Porentrui, &c. The Bernese gunpowder is excellent, and far superior in quality to the French: the manufacturing of it is free, and not subject to monopoly as in France. At Correndelin, Untervilier, and other places in the valleys of the Jura, there are iron-works and foundries, the iron-ore being found in abundance in the mountains. The manufacture of agricultural implements has been carried to great perfection at Mr. Fellenberg's establishment at Hofwyl. Timber for building and fuel are supplied by the mountain forests, and from other woods in several parts of the lowlands.

The lakes of Bienne and Thun and the river Aar abound with various sorts of fish, especially of the trout and salmon kind. Hares, chamois, marmots, and partridges are the principal game. Bears and wolves are found in the higher Alps, but in small numbers. Among the birds of prey, the Lammer-geyer, the great vulture of the Alps, is the largest, though not very common: some are of very great size, and will carry off a lamb to the mountains, from which circumstance their name is derived.

The government of Bern was, until the end of the last century, in the hands of a council, called the Council of Two Hundred, which consisted in fact of 299 members, chosen exclusively from among the burghers of Bern. All the rest of the canton was subject to them. A senate, elected by the great council from among its own members, held the executive power. A schultheiss or avoyer was the chief magistrate of the republic. The commonwealth being in its origin limited to the town, which was a free imperial city, having received a charter or bull from the Emperor Frederic II., dated May, 1218, all the citizens who were possessed of a house in it had a vote in the general assembly, which elected the magistrates and the council of government. As the town became enlarged, the burghers were classed into four tribes or guilds, each headed by a banneret or standard-bearer, who exercised great influence at the elections. By degrees the members of the sovereign council remained for life, and the vacancies were filled up by the council itself mostly from a small number of influential families. Many of the neighbouring feudal nobles became burghers of Bern, whilst others fought against the ruling commonwealth, and were successively defeated, and obliged to give up or sell part or the whole of their territories to the city, which thus became possessed of extensive domains. This was the origin of the state of Bern. The wars which it sustained against several emperors who had become jealous of its growth served to strengthen its power. Rudolf of Habsburg attacked Bern in vain in 1288. His son Albert marched against Bern in 1298, and was defeated at Donnerbuhlen by the Bernese, led by Ulrich von Erlach. In 1339 the Emperor Louis of Bavaria declared war against Bern. The nobility of western Helvetia, who were vassals of the empire, and the town of Freyburg, which was liege to Austria, united their forces to the number of 15,000 foot and 3000 horse. The Bernese, commanded by Rudolf von Erlach, son of Ulrich, and reinforced by 1000 men from the three forest cantons, met the enemy at Laupen on the 21st of June, and with only 5000 men completely defeated the proud chivalry opposed to them. This victory consolidated the power of Bern, which became henceforth the principal state of all western Helvetia. In 1352 Bern was admitted into the Swiss Confederation, of which it formed the eighth canton. [See SWITZERLAND.]

In 1415 Bern conquered the greater part of Aargau from the house of Austria, and added it to its dominions. In 1476 it sustained the attack of Charles the Bold, Duke of Burgundy, whom the Bernese, assisted by their Swiss confederates, defeated at Granson and Morat. In 1528 Bern adopted the Reformation, but the change was effected without violence, and the revenues of the suppressed monasteries were applied to the support of the reformed clergy, to the foundation of schools, and other charitable purposes. In 1536 the Bernese took the Pays de Vaud from the Duke of Savoy, in consequence of his having attacked Geneva, the ally of Bern. By a subsequent treaty the Pays de Vaud was formally ceded by the duke. This was the last conquest of Bern. For nearly three centuries after, the territory of Bern continued to extend over the finest part of Switzerland, from the banks of the Lake of Geneva to those of the Rhine, besides several bailiwicks which it possessed in common with other cantons in Thurgau and other parts.

The government of Bern gave no share in the legislative or executive to the population of the territory, but it left to the country towns the municipal franchises which they enjoyed at the time of the conquest, the election of their local magistrates, and the administration of the communal property. The canton was divided into landvogteien or bailiwicks, and the baillis were taken from among the councillors of Bern. They were the administrators of the public revenue, and of the domains of the state, and likewise the judges of the district. Unfavourable reports have been made of the administration of those officers, but these reports seem to have been at least greatly exaggerated. (See Stanyan and Coxe on this subject.) One essential distinction which has been lost sight of by party writers is that between the baillis of the canton itself, who were under the immediate inspection of the government, to which there was appeal from their decisions, and those sent by turns to the subject bailiwicks held by several cantons together, in the Italian valleys, where it is known that they were under little or no control, and where they often acted the part of avaricious despots.

The members of the sovereign council of Bern were elected for life, and every ten years there was an election to supply the vacancies that had occurred during that period. The councillors themselves were the electors; and as old families became extinct, and as it was a rule that there should not be less than eighty families having members in the great council, vacancies were supplied from new families of burghers. Still the number of families in whose hands the government was vested was comparatively small, and several unsuccessful attempts were made in the course of the eighteenth century to alter this state of things, and to reinstate the assemblies of the body of the burghers. The discontent, however, was far from general, and it did not extend to the country population. The administration was conducted in an orderly, unostentatious, and economical manner, the taxes were few and light. 'It would be difficult,' says the historian Müller, 'to find in the history of the world a commonwealth which for so long a period has been so wisely administered as that of Bern. In other aristocracies the subjects were kept in darkness, poverty, and barbarism, factions were encouraged amongst them, while justice winked at crime or took bribes, and this was the case in the dependencies of Venice. But the people of Bern stood with regard to their patricians rather in the relation of clients towards their patrons, than in that of subjects towards their sovereigns,' Zschokke, a later Swiss historian, speaking of Bern and other aristocracies of Switzerland, says, 'They acted like scrupulous guardians. The magistrates, even the highest among them, received small salaries; fortunes were made only in foreign service, or in the common bailiwicks of the subject districts. Although the laws were defective and trials secret, the love of justice prevailed in the country; power wisely respected the rights of the humblest freeman. In the principal towns, especially the Protestant ones, wealth fostered science and the fine arts. Bern opened fine roads, raised public buildings, fostered agriculture in its fine territory, relieved those districts that were visited by storms or inundations, founded establishments for the sick and the helpless, and yet contrived to accumulate considerable sums in its treasury. . . . . But the old patriotism of the Swiss slumbered: it was replaced by selfishness, and the mind remained stationary; the various cantons were estranged from each other; instruction spread in the towns, but coarseness and ignorance prevailed in the country.' The consequence of all this was, that when the storm came from abroad it found the Swiss unprepared to face it. The French republic, in its career of aggression, did not respect the neutrality of Switzerland. The Directory found a pretext for aggression upon Bern in the complaints of some refugees of the Pays de Vaud, who claimed political rights for their country. A French army entered the Pays de Vaud in 1798, and declared that country independent of Bern. They next demanded that the government of Bern itself should be made democratic. The great council of Bern had already proposed reforms, and had called together deputies from the country to assist in carrying them into effect. But the French General Brune imperiously demanded the immediate resignation of all the actual members of the government. The Bernese militia, to the number of 22,000, had been called together for the defence of the country, and placed under the command of General d'Erlach. Brune required it to be disbanded. Orders and counter-orders were sent in quick succession from Bern to D'Erlach's camp. The councils of Bern were irresolute, while the militia were eager to fight. Insidious reports were spread among the Bernese camp that the officers were betraying them to the French; several battalions mutinied, and murdered their colonels, but after committing the crime they returned to their post, determined to fight the invaders. At last, on the 5th of March, the French attacked the Bernese division of Graffenried, which repulsed them at Neuenek with great loss. Another French division at the same time attacked D'Erlach at Frauenbrunnen, and by its superiority in cavalry and artillery, drove him back after a desperate resistance. Bern was now left uncovered and open to the enemy, and it capitulated. D'Erlach took the road to the Oberland, where he intended to rally his troops and make a stand, but he was murdered on the way, at Münsingen, by his own soldiers, who fancied he had betrayed them. Many other officers of the first families of Bern fell either in the fight or in the mutiny, whose names stand recorded on six black marble slabs in the cathedral of Bern; and a number of women were killed fighting with scythes by the side of their husbands and brothers at Grauholz, near Bern, where the Bernese made a last stand after D'Erlach's defeat. The French seized upon the treasury at Bern, where they found above thirty millions of francs in gold and silver, and they emptied the arsenal, which was well stocked with arms and ammunition of every sort. These, as well as the money, were the principal inducements to the aggression.

After several years of civil and foreign war, attended by dreadful calamities, the act of mediation by Buonaparte in 1803 organized Switzerland into nineteen cantons, of which Bern was one, Aargau and Vaud being definitively separated from it. In 1815 a new federal pact was framed, and was guaranteed by the allied powers. The territories of the former bishop of Basel which had been annexed to France were given to the canton of Bern, which thus became again the largest and by far the most populous canton of all Switzerland. The constitution of the canton at the same time was again made more aristocratical; 200 of the members of the sovereign council were chosen from among the burghers of Bern by a commission of the council itself, the remaining ninety-nine being chosen from the rest of the canton by the electoral colleges of the various districts. The old patrician families resumed their influence over the elections, and the office of councillor was again for life. In December 1830, when other cantons of Switzerland changed their constitutions, the country districts of Bern demanded a more equal share of the representation and a popular system of election. The sovereign council yielded to the demand, and appointed a committee to frame a new constitution, which was completed in the summer of 1831, while the old authorities still remained in office, and the administration proceeded with the usual regularity. The election of the members in town and country was given to the respective constituencies, the number of members returned by each district being in proportion to its population; the superiority of the burghers of Bern over the country was effaced, all privileges of persons and families were abolished, the censorship was suppressed, a municipal organization was given to the communes, the debates of the sovereign council were made public, and other regulations of a popular nature were enacted. Bern has thus become a democratic republic. The new constitution has now (1835) been in force for more than three years; notwithstanding some heart-burnings and party ebullitions, things appear to be settling into a regular system, and no act of open violence or bloodshed has accompanied the change. The greatest difficulties are those existing between Bern and the other confederates concerning federal regulations, for in the diet Bern takes the lead of the movement party in Switzerland, and finds itself in opposition to the majority of the cantons, which although equally democratic in their internal constitutions, are opposed to fundamental changes in the federal pact, and are jealous of the power of Bern, which having almost one-fourth of the population of Switzerland, would, if the members to the diet were to be returned in any thing like numerical proportion, exercise an irresistible influence over the deliberations of that body, while the votes of the smaller cantons would be completely swamped by those of a few large ones. For a detailed account of these dissensions, see an article on Swiss politics in Cochrane's *Foreign Quarterly Review*, March, 1835.

The population of the canton of Bern is chiefly Protestant, of the Helvetic confession of faith, which was drawn up by Zwingli and Bullinger, the two Swiss reformers of the sixteenth century. The number of Catholics is reckoned at 42,000; they are chiefly in the territory of the former bishop of Basel.

The department of public instruction has been improved since the beginning of the present century, and there are now elementary schools all over the canton, but the remuneration of the masters is very scanty, being only from 50 to 100 Swiss livres (3*l.* to 6*l.* per sterling) a year. The secondary instruction is given in gymnasia, of which that of Bern is the principal, and is supplied with very good professors. In 1826 a school for artizans was established at Bern by several benevolent citizens, in which artizans are taught gratis. In general, however, instruction is not so generally diffused at Bern as in Zürich. [For the establishment of M. de Fellenberg, see HOFWYL.] For scientific instruction Bern has a university, with about twenty professors of theology, jurisprudence, medicine, mathematics, philosophy, mineralogy, natural history, and the art of drawing, a public library with 30,000 volumes, a botanical garden, museum, &c. A federal military school for the artillery and engineers is established at Thun. There is besides a cantonal military school, for the instruction of the officers of the militia. The number of men from twenty to fifty years of age liable to be called under arms in case of invasion is about 50,000 in the whole canton. Bern is bound to furnish a contingent of 5824 men to the federal army whenever required by the diet, and to have an equal number ready as a reserve in case of need.

The language of the people of the canton of Bern is the Swiss-German, but various dialects prevail in the different districts or valleys. The dialect of the Ober Hasli is peculiar, and is said to contain many Swedish words or roots. Almost all the educated people of the towns, and especially of Bern, understand and speak French. In some of the valleys of the former bishoprick of Basle French is spoken by the people in general.

The character of the Bernese peasantry is steady, serious, and slow, but they are subject to fits of violent passion when excited. The educated people of the towns are refined and polite, and hospitable to strangers. A mixture of the German and French characters is observable in them. Much licentiousness used to prevail in the town of Bern among the young men, but things appear to have improved in this respect of late years. (See Bonstetten, *Lettres*, 1831.) The general tone of manners and habits throughout the canton, however, is orderly, domestic, and religious. The Bernese peasantry in general are healthy and robust; the women in some of the valleys are remarkably handsome. Their peculiar costume and head-dress may be seen in the collection of prints of Swiss costumes.

BERN, the capital of the canton of Bern and one of the three *Vororts* of Switzerland, was founded in 1191 by Berthold V. Duke of Zähringen, for the purpose of keeping in check his refractory nobility. In 1218 Bern was made an imperial city by the emperor Frederick II. A great fire destroyed the whole town in 1405, after which it was rebuilt on its present regular plan.

Bern is situated in 46° 56′ 54″ N. lat., and about 7° 25′ E. long., on a somewhat long and elevated peninsula, formed by the river Aar, which runs on three sides of it the fourth is open to the west, and fortified. There is a stone bridge over the Aar, about 260 feet long. The town, which contains 1128 houses and 13,900 inhabitants, may justly be reckoned among the most elegant cities in Europe. Its style of building is very regular, without appearing monotonous; the streets are broad, and run parallel from east to west: they have, for the most part, arcades on both sides with good shops, and communicate by cross streets. There is a great number of fountains in the city, many of them ornamented with statues, some of which refer to historical events.

Of all the buildings the Münster, or cathedral, is the most remarkable. It is built in the Gothic style, and is 160 feet long and 80 broad; the steeple is left unfinished. The chief entrance is adorned with curious sculpture. In the windows there are also fine glass-paintings. The church of the Holy Spirit is distinguished for its simple modern architecture. Among other large and elegant buildings are the Bürgerspital and Inselspital (citizen and island hospital), which latter alone forms a whole street. The town-hall is an old and heavy building, which presents nothing remarkable. The corn-magazine, a large and splendid building, rests on thirty-four pillars. The New Schallerhaus, a prison and house of correction, built of freestone, is the largest edifice of the kind in Switzerland. The armoury, the orphan-house, the hôtel de musique or theatre, the casino, the library, and the museum, are also fine buildings. The barrières of Aarberg and Murten are very handsome: near the former is the bärengraben (bear-ditch), in which, for several centuries, a family of bears has been kept at the expense of the state *.

Of the walks near the town the Plateforme and the Enge are the best. The former, along a terrace 108 feet above the Aar, with noble chestnut-trees, is one of the finest walks in Switzerland. The latter, which in its arrangement presents a rural appearance, is made for ever memorable by Studer's *View of the Alps*, taken from it, the finest panorama which has appeared in Switzerland, and in which no error has yet been discovered. The very extensive burying-yard, Monbijou, in summer resembles a rich garden.

Bern is not properly a manufacturing place: as a trading town it is not inconsiderable. The chief trade is with the produce of the country. There are yearly exhibitions for encouraging industry and agriculture. A great deal is done in the banking business. There is a powder manufactory, breweries, tanneries, a manufacture of straw-hats, &c.

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* There is a bear in the arms of Bern.

The town has a good public library, of 30,000 volumes, and a richly-endowed museum of natural history. There are also many private collections of minerals, plants, coins, &c., and two botanical gardens.

The establishments for education are good, and much is done at present for the instruction of all classes. The academy was changed in 1834 into a university, and the gymnasium is now being re-organized, as well as all the schools in the canton. Almost all the inhabitants are of the reformed religion. Bern is the birth-place of the celebrated Haller. (*Communication from Switzerland.*)

BERNARD, Duke of Weimar. [See THIRTY YEARS' WAR.]

BERNARD, EDWARD, was born May 2, 1638, at Pauler's Perry, near Towcester in Northamptonshire, of which place his father was rector. He was educated first at Northampton, afterwards at Merchant Tailors' School, London, under Dugard. In June, 1655, he was elected scholar of St. John's College, Oxford. Here he turned his attention to the Hebrew, Syriac, Arabic, and Coptic languages, in addition to the pursuits of the place; and also to mathematics, which he studied under Wallis. In 1658, he was made fellow of his college, B.A. in 1659, M.A. in 1662, B.D. in 1667, and D.D. in 1684. In 1668 he went to Leyden to consult manuscripts, and brought home the three books of Apollonius, which [see APOLLONIUS] Golius had brought from the east. About 1669, Christopher Wren being appointed architect to the king, obtained leave to have a deputy for the duties of the Savilian professorship of astronomy, and he appointed Bernard. The latter obtained at the same time a living and a chaplaincy, but these he resigned in 1673, when Wren finally resigned his professorship. The Savilian professors are not allowed to hold any church preferment, and Bernard at this time desired to succeed Wren. This he did, against the advice of friends, who were unwilling that he should quit the road of preferment. The design which was then formed, and afterwards executed, of reprinting all the old mathematicians at Oxford, seems to have been his great inducement. He was not much attached to astronomy itself, though versed in the antiquarian learning connected with it. In 1676 he went to France, as tutor to the dukes of Grafton and Northumberland, the sons of Charles II. by the duchess of Cleveland. He staid only a year, not being satisfied (Dr. Smith hints) with the treatment he received. In 1683 he went to Holland, to be present at the sale of the library of Heinsius: and being now disgusted with his situation at Oxford, would have remained at Leyden, if he could have obtained the professorship of Oriental languages. He would have resigned in favour either of Flamsteed or Halley, for he said he found astronomy made life neither better nor happier. He was, however, unable to obtain any means of extricating himself till the year 1691, when Mewes, bishop of Winchester, gave him the rectory of Brightwell in Berkshire. He was succeeded in the professorship by David Gregory, and subsequently by Halley. Under these two the reprints of the old mathematicians were made which distinguished the Oxford press of that period; and the labours of Dr. Bernard, who passed his life in searching for and collating manuscripts, were of the greatest preliminary service. In 1693 he married; in 1696 he went again to Holland, to be present at the sale of the library of Golius. He died at Oxford soon after his return, January, 1697, having lived a most industrious and useful life. He left behind him a large number of papers, some of them unfinished. Of his printed works we shall presently speak. The life of Bernard was published in 1704, by Dr. T. Smith, his intimate friend. It is written in Latin, but from the immense length of the sentences, is almost unintelligible. The principal contents are faithfully transcribed in the *Biographia Britannica*, with information from other sources. In either of these works the catalogue of unfinished papers will be found, as well as of printed works. The latter are as follow:

1. 'Of the Antient Weights and Measures,' published at the end of Pococke's Commentary on Hosea, Oxford, 1685; reprinted with large additions, Oxford, 1688, in Latin, under the title of 'De Mensuris et Ponderibus Antiquis libri tres.' It contains a good index, and an appended letter by Hyde, on the Chinese weights and measures. This is a work of learning, and one of the best which remain on the subject. It must be observed, that Arbuthnot, in his work on ancient weights and measures, never cites it, and does not seem to be aware of its existence: which considering the nature of the subject, very much adds to the utility of both works for the purposes of comparison, unless the second work be taken from the first, of which, on comparison, we do not see any very obvious signs.

2. 'Private Devotions, with a brief explication of the Ten Commandments,' Oxford, 1689.

3. 'Orbis eruditi literatura a charactere Samaritico deducta,' a table printed from a copper-plate, (in what year is not stated,) giving at a view the letters of most antient nations, collected from actual monuments; together with the contractions of the Greeks, and those of physicians, mathematicians, and chemists.

IV. 'Canon precipuarum e stellis fixis (numero xxiii.) secundum observata majorum,' in the Philosophical Transactions for April, 1684.

V. In the *Phil. Trans.* for September, 1684, is a Latin letter to Flamsteed, endeavouring to prove the permanence of the value of the obliquity of the ecliptic, from antient observations.

VI. *Etymologicon Britannicum*, at the end of Hickes's *Grammatica Anglosaxonica et Moesogothica.* It contains the Russian, Slavonic, Persian, and Armenian derivations of English and British words.

VII. *Chronologiæ Samaritanæ Synopsis*, a letter to J. Ludolf; who published it in the *Acta Eruditorum* for April, 1691.

VIII. *Notæ in Fragmentum Seguierianum Stephani Byzantini.* A part of this only, that relating to Dodone, was published by Gronovius at the end of his *Exercitationes de Dodone*, Leyden, 1681. It is praised by Fabricius.

IX. *Adnotationes in Epistolam Sancti Barnabæ*, Oxford, 1685. In Bishop Fell's edition.

X. *Adnotationes in Scriptores Apostolicos*, in the Amsterdam edition of Cotelerius' Apostolical Fathers.

XI. *Scholia et Annotationes in Græcas inscriptiones Palmyrenorum*, Utrecht, 1698.

XII. Collection of letters of Robert Huntington, &c., published with Dr. Smith's life of Bernard. (See the life of Huntington in the same work.)

XIII. *Veterum Mathematicorum Græcorum, Latinorum, et Arabum, synopsis.* A catalogue, being a sort of prospectus of the scheme of publication hereinbefore alluded to. In the same work as the last.

XV. *Testimonia aliquot, &c. de* LXXII *Interpretibus eorumque Versione.* At the end of Aldrich's edition of Aristeas, Oxford, 1692.

The work of Aristarchus, as published by Wallis, was collated by Bernard, and the result of his collation of the text of Euclid may be said to be published in Gregory's celebrated edition. (See its Preface.)

BERNARD, ST., abbot of Clairvaux, one of the most distinguished saints in the Roman calendar, was born at Fontaine, in Burgundy, in the year 1091. His father was Tecelinus, a nobleman and a soldier: his mother's name was Aleth. Both his parents were persons of great piety, according to the notions of that age. Bernard was the third of seven children. From his infancy he was devoted to religion and study, and after having been educated at the university of Paris, at that time one of the most celebrated seats of learning in Europe, at the age of twenty-two he entered the Cistercian monastery of Cîteaux, near Dijon in Burgundy. His influence on the minds of others, even at that early age, is shown by his inducing upwards of thirty of his companions, including his five brothers, to accompany him in his retreat. The Cistercian order was at that time the strictest in France, and Bernard so recommended himself by the most rigorous practice of its austerities, that in the year 1115 he was selected as head of the colony which founded the abbey of Clairvaux in Champagne. For some time he practised such severities as to injure his health, but he afterwards acknowledged his error, and relaxed his discipline, both with respect to himself and others.

His reputation soon rose so high, that in 1128 he was employed by the grand master of the Templars to draw up the statutes of that order. Such was his influence, that in defiance of all justice, he prevailed on the king, clergy, and nobility of France assembled at Etampes, near Paris, to acknowledge Innocent II. as legitimate pope, in opposition to his competitor Anaclete (*L'Art de verifier les dates, Concilium Stampense and Innocent II.*), and afterwards succeeded in obtaining the same acknowledgment from Henry I. of England. Some time after he was sent to make some arrangements with the clergy of Milan, who conceived such an admiration for him, that at the close of the negotiation, they offered him the archbishopric of that city, which he refused. In the course of his life he also refused the archbishoprics of Genoa and Rheims, as well as many other ecclesiastical dignities. Having condemned as heretical some propositions in the works of the celebrated Abelard, he was challenged by him to a public controversy. At first he wished to decline the challenge, but at last accepted it, at the pressing instances of his friends. In the year 1140 they met at the council of Sens in Champagne, but before the discussion was completed, Abelard appealed to the pope: the council agreed with Bernard in condemning the propositions, and by order of the pope, Abelard was confined in the monastery of Cluni, in Burgundy.

At the council of Vézelai, on the confines of Burgundy and Nivernois, in the year 1146, Bernard persuaded the king and nobility of France to enter on a crusade. On this occasion he went so far as to claim inspiration, and to prophecy the success of the undertaking. This is the most reprehensible part of his career, and the quibble by which he attempted to cover the failure of his prophecy is truly contemptible. (Bayle, *Dict. Hist.*) In the same year a council was held at Chartres, where the crusaders offered St. Bernard the command of the army, which he refused. In 1147, at the council of Paris, he attacked the doctrine of Gilbert de la Porrèe, bishop of Poitiers, on the Trinity; and in the following year, at the council of Rheims, procured its condemnation. During the course of his life he successfully combated several other heresies. The last act of his career was his mediation between the people of Mentz and some neighbouring princes. On his return to his convent he fell ill and died, A.D. 1153. He was canonized in the year 1174, by Pope Alexander III., and the Roman church celebrates his festival on the 20th of August.

There is perhaps no instance on record of such extensive influence, obtained by the mere force of personal character, without any adventitious advantages; and upon the whole, St. Bernard's influence does not appear to have been undeserved, though it was occasionally misused. In our estimate of his character, and particularly of his conduct with respect to the crusades, we must make great allowances for the spirit and feelings of the age. It is much to his credit, that, attached as he was to the papal supremacy, he laid open with an unsparing hand the vices and corruptions of the Roman court; and on all occasions he seems to have acted in a spirit of fervent zeal, and, for that age, of Christian charity. His works, which have procured for him from Roman Catholic writers the honourable appellation of the last of the fathers, have been repeatedly published. The best edition is that by Mabillon, 2 vols. folio, Paris, 1719, which, besides his undoubted works, contains several productions attributed to him on less authority, and some lives of him by monkish writers, to which those who wish for an account of his miracles and austerities are referred. (See Milner's *History of the Church*, vol. iii. p. 330; Waddington's *History of the Church*, p. 325; Mosheim's *Ecclesiastical History;* Neander's *St. Bernard and his Times*, Berlin, 1813.)

BERNARD, SAINT, one of the chief mountain-passes in the Pennine chain of Alps between the Swiss Valais and Piedmont. This road leads from Martigny and the villages of Liddes and St. Pierre in the Valais to St. Remy, and Aosta in Piedmont. This pass, which is rather more steep and difficult on the Swiss than on the Italian side (as was found by the French army which crossed the mountain in May, 1800), is only practicable the whole way for mules and pedestrians; though, at times, the light *chars-à-bancs* of the country go with difficulty as far as the Hospice. The most elevated part of the passage of the St. Bernard is a long and narrow valley, the bottom of which is occupied by a lake. The height of this valley above the level of the sea is stated by M. Saussure, on the authority of M. Pictet, at 1246 toises, or about 7963 English feet; and by Mr. Brockedon at 8200 English feet. At the eastern extremity of the lake, which is frozen over during eight or nine months of the year, stands the celebrated Hospice, or house of reception, or monastery of St. Bernard; and at the other end of the lake there is a small level space, called the Plain of Jupiter, or Jove, where in ancient times there stood a temple of that god, and probably a house of refuge, built by the Romans. From the temple the mountain derived its name, it being antiently called Mont Jovis, which Latin denomination was corrupted into Mont-Joux; and it bore the latter name until (as it is generally stated) the celebrity of the hospice of St. Bernard gave it a new and a Christian designation. This last opinion has, however, been controverted; and it appears not improbable that the mountain owed its name of Bernard not to a saint, but to a soldier. M. Saussure says it was so styled more than a century before St. Bernard; and he thinks the name may have arisen from Bernard, or Bernhard, the uncle of Charlemagne, who took that passage for his army across the Alps in his famous expedition against Astolphus, the last Lombard sovereign but one of Upper Italy.

According to general report, the hospice, or monastery, was built by St. Bernard about A.D. 962; but, again, it seems evident that there was a monastery, with an abbot, styled of Mont-Joux, long before that period, at or near the site of the present edifice. As it is not probable that this pass into the fertile plains of Piedmont was ever wholly abandoned, and as it must always have exposed travellers to danger and great fatigue, it is reasonable to suppose that some house of refuge was kept up from the time of the Romans, or even before. M. Saussure and other travellers saw a number of ancient ex-voto tablets and images which had been found in the pass, where they had been offered to the pagan temple by the way-farers of old, in gratitude for their safe journey.

The monastery of St. Bernard has been twice consumed by fire. Its sainted founder is said to have lived forty years on the desolate spot. The monks are of the order of St. Augustin. Considerable landed property was once attached to this humane and useful establishment, but it now mainly depends on annual allowances made by the Swiss and Piedmontese governments, and on voluntary donations of private individuals and rich travellers. It extends relief and eleemosynary hospitality (when needed) to all classes and conditions of men; and, without heeding the general nature of monastic institutions or the distinctions of creeds, the Protestant Swiss contribute as readily to it as the Catholic Italians. The exertions of these monks to rescue lost travellers from the snow and the avalanche, and the stories of their dogs, are well known.

The monastery of the Great St. Bernard is the most elevated fixed habitation in Europe, and close upon the limits of perpetual snow. Tremendous rocks and peaks rise above it, to the height, according to Saussure, of 663 toises, or 4240 English feet, in their highest part. About half of the mountain-mass may be said to belong to Italy, and half to Switzerland; and not far from the lake there is a barrier, marking the frontier or line of demarcation between Piedmont and the Valais. A torrent which descends towards Aosta and Italy is called Le Butier, and another torrent which rushes in the opposite direction towards St. Pierre and the Valais is named La Drance du St. Bernard.

Besides the St. Bernard, there is the Little St. Bernard, which lies between Tarentaise and Piedmont, and forms part of the chain of the Graian Alps. This passage is described in the article Alps.

See Saussure, *Voyage dans les Alpes;* Brockedon's *Passes of the Alps.*

BERNARDINES, a branch of the Benedictine Order of Religious, more frequently called Cistercians. Their name of Bernardines was derived from St. Bernard, abbot of Clairvaux, or Clareval, in the diocese of Langres, about A.D. 1115, who was a great promoter of their order. They were called Cistercians from Cistertium or Cîsteaux, in the bishopric of Châlons in Burgundy, where the order was begun in the year 1098 by Robert abbot of Molesme in that province, but brought into repute by Stephen Harding, an Englishman, third abbot of Cîsteaux, who is therefore reckoned the principal founder. They were also called White Monks from the colour of their habit. Fuller, in his *Worthies*, book iii. p. 164, probably errs, when he makes the Bernardines to be a stricter order of Cistercians.

The monasteries of the Bernardine or Cistercian Order, which became very numerous in a short time, were generally founded in solitary and uncultivated places, and were all dedicated to the Virgin Mary. It was a rule with the Cistercians not to allow another house, even of their own order, to be built within a certain distance. Stevens, in his continuation of Dugdale's *Monasticon*, vol. ii. p. 31, says, if we may believe the historians of this order, they had in all six thousand houses. The *Histoire des Ordres Monastiques* says that within fifty years of its institution there were five hundred abbeys of this order. St. Bernard alone is said to have founded sixty houses.

The Bernardines or Cistercians were transplanted into England from the abbey of Aumone in Normandy, in 1128, by Walter Giffard, bishop of Winchester, who placed them in his newly-founded abbey of Waverley in Surrey. This monastery was the first house of the Cistercian Order established in England, although precedence was for a while claimed by the abbey of Furness in Lancashire. The 'Annals of Waverley,' printed by Gale, give a minute account of the dispute. (See also Manning and Bray's *History of Surrey*, vol. iii. p. 144.) The abbot of Waverley had precedence as well in the chapters of the Cistercian abbots through England, as a superiority over the whole order in this country.

In the 26th Henry VIII. the number of Bernardine or Cistercian abbeys in England, of which thirty-six were among the greater monasteries, amounted to seventy-five, besides twenty-six Cistercian nunneries. Of the latter, one only was endowed with more than 200*l.* per annum. The total revenue of the Cistercian houses in England amounted to 18,691*l.* 12*s.* 6*d.*

Stevens, in his work already quoted, vol. ii. p. 23, has translated a long history 'Of the Original and Progress of the Order of Cistercians' from the French *Histoire des Ordres Monastiques*, &c., tom. v. pp. 341, 373. Dugdale and Stevens, between them, have printed the rules and regulations of this order, with the various bulls of confirmation and privilege granted to it by different popes. Stevens has likewise given a list of the learned men of the Order of the Bernardines or Cistercians in England, thirty-six in number. St. Bernard's College in Oxford (since re-founded as St. John's College) was founded by Archbishop Chichele in 1437 for scholars of the Cistercian Order who might wish to study in Oxford, but had no place belonging to their order in which they could associate together, and be relieved from the inconveniences of separation in halls and inns, where they could not keep up their peculiar customs and statutes. The figure of St. Bernard still stands in a niche in the upper part of St. John's College tower.

St. Alberic, who became abbot of Cisteaux in 1099, drew up the first statutes of this order. The Harleian Manuscript *3708* (British Museum), a volume of the fourteenth century, contains another body of statutes for the order, compiled in the years 1289 and 1300.

The habit of this order was a white cassock with a narrow scapulary, and over that a black gown when the monk went abroad, but a white one when he went to church. The lay brethren were clad in dark colour. Stevens represents the habit to have been a little different. In his *Contin. of the Monasticon*, vol. ii., he gives a plate of a Cistercian monk with his cowl, p. 29; another of a monk without his cowl, p. 30; and a third of a Cistercian nun, p. 31.

The abbot of Cisteaux in Burgundy continued to be the superior general and father of the whole Bernardine or Cistercian Order till the French Revolution. He was first counsellor, as soon as he was elected abbot, in the parliament of Dijon.

(Compare Tann. *Notit. Monast.* edit. 1787, pref. pp. ix. x.; Dugdale's *Monasticon*, new edit. vol. v. pp. 219, 236; *Hist. des Ordres Monastiques*; and Stevens, *ut supra.*)

BERNAY, a town in France, in the department of Eure, about ninety-two or ninety-three miles W. by N. of Paris, through Mantes and Evreux. It is on the left or N.W. bank of the little river Charentonne, which a few miles below the town flows into the Rille, a feeder of the Seine. It is in 49° 6′ N. lat., and 0° 34′ E. long. from Greenwich.

Bernay possessed, before the Revolution, several religious *houses, the principal of which was a Benedictine abbey of* the congregation of St. Maur, founded A.D. *1013*, by Judith, wife of Richard II., Duke of Normandy. The church of this abbey, though not parochial, was the chief place of worship in the place, and in it the clergy assembled both from the town and suburbs, in order to form general processions. There were two parish churches, one in the city and one in the suburbs; and two hospitals, one of them founded by St. Louis. In the early part and middle of the last century the trade of Bernay consisted in corn and woollen and linen cloth. It had then four fairs, the principal of which was held either on or just before Palm Sunday (authorities vary as to the exact time), and a weekly market, frequented by the inhabitants not only of the neighbourhood, but of more distant parts. Expilly, in 1762, gives the population at about 8000. In the *Dictionnaire Universel de la France*, 1804, it is stated at 6473; perhaps the destruction of the religious houses and the decay of trade had caused the diminution. According to the census of 1832 the population of the town was 4480, and of the whole commune 6605.

At present there are considerable manufactures of woollen cloth, flannel, linens, cotton yarn, dimities, wax, leather, glass, and paper. There is an annual fair, one of the most considerable in France, especially for the sale of horses. It is said that above 40,000 persons are drawn together to this fair. Besides their own manufactures the inhabitants trade in the produce of the surrounding country—cattle, grain, cider, and perry. There are a theatre, a high school, an hospital, and an agricultural society. Bernay has a *tribunal de commerce* for the settlement of mercantile disputes, and it is the seat of a subprefecture.

The arrondissement of Bernay contained, in 1832, a population of 82,828.

BERNBURG, or **ANHALT-BERNBURG**, a duchy in the north of Germany, forming part of the triple duchy of Anhalt, consists of disjointed territories lying between the Harz Mountains and the rivers Saale and Elbe, and extends from 51° 40′ to 51° 59′ N. lat. and from 10° 59′ to 12° 36′ E. long. The area of this duchy is about 336 square miles. It is encompassed by the Prussian dominions on every side, except on the west, where an isolated district of it is bounded by the domains of Blankenburg belonging to Brunswick. It is divided into two parts, the lower duchy comprising the territories on the Saale, Wipper, Bude, and Fuhne, together with the bailiwick of Gross-Mühlingen, on the left bank of the Saale, and that of Koswig, on the right bank of the Elbe; and the upper duchy, which comprehends the territory next the Lower Harz. The greatest length of Bernburg is from the south-western to the north-eastern extremity of the principality of Anhalt, a distance of about sixty-four miles. The surface of the latter sub-division, though very mountainous and full of woods and forests, is intersected by a number of delightful and productive valleys, and enlivened with rivers and mountain streams; few scenes are more picturesque, indeed, than the country round Ballenstedt, Harzgerode, and the Alexis baths in the valley of Selke. The Harz, which subsides in the plains of the upper-duchy, is the only range of mountains in Anhalt-Bernburg, and is not only interesting in a mineralogical point of view, but of much importance to the duchy from its mines. The lower duchy, one portion of which lies on the Saale and the other on the right bank of the Elbe, is an almost uninterrupted flat, and possesses a productive soil. It is watered by the Fuhne and Wipper, two minor rivers flowing into the Saale, which likewise receives the Bode and its tributary the Selke, the two streams that run through the upper duchy. All the rivers which water Anhalt-Bernburg belong, therefore, to the basin of the Elbe. Among the small lakes, or rather sheets of water, in this duchy, the most considerable are, the Blässer-See, the Röse, and the Strenge. The only mineral spring of note is the Alexis Bad, about a mile to the north-east of Harzgerode, in the upper duchy, whose sulphurous waters and pleasing environs attract numerous visitors. The climate varies according to the elevation of the surface, but is in general healthy. In the more elevated districts about Güntersberg, where the soil is exposed to the northerly winds, the fruit in some years does not ripen, and the harvest is a fortnight later than in the lower districts. On the whole, however, there is proof of the salubrity of the climate in the excess of the births over the deaths for the period between the years 1817 *and 1830, in which* the former were 18,720, and the latter *were not more than 12,415. There is considerable diversity in the products of the two sub-divisions of Anhalt-Bernburg.* The lower duchy yields every kind of grain in abundance, peas and beans, vegetables, flax, and a small quantity of tobacco; the growth of wine about Bernburg is on the increase, and fruit is plentiful in all parts. Of horned cattle there is a sufficiency; sheep are numerous, and the breed has been greatly improved of late years; the want of pasture impedes the rearing of horses, the stronger species of which are mostly imported from foreign parts; swine are universally reared. Except in the district of Koswig, the lower duchy is dependent upon its neighbours for timber and fuel; its mineral products are coal, lime, gypsum, red earth, clay, and sandstone; game and fish abound, and among the latter the salmon of the Saale is in repute. The productions of the upper duchy are of a very dissimilar character: here, the soil being mountainous and stony, the growth of grain is inadequate to the consumption; little wheat or barley is raised, but the cultivation of rye, oats, potatoes, peas, and turnips for cattle is extensive; flax is also grown about Hoym. Horned cattle are abundant, but the breeding of horses is inconsiderable: there is plenty of red and black game, as well as of fish. The most valuable products of this part of Anhalt-Bernburg are, however, timber and minerals, among which we may mention iron (1000 tons), silver ore (1400 marks), lead (150 tons), copper, vitriol (600 cwt.), sulphur, coals, sandstone, and marble.

The duchy is by no means a manufacturing country. Its chief products are iron and steel ware, yarns, linens, woollens, and flannels, articles of wood, porcelain, and earthenware; it exports butter, some grain, wool, timber, iron, and ironware. The breweries and distilleries only produce sufficient for the internal demand; and the same may be said of the supply of lime, millstones, and tiles. There are four smelting furnaces, two sulphur-houses, a vitriol manufactory, and gunpowder works in the valley of the Selke; a large paper-mill at Bernburg, a saw-mill at Gernrode, a manufactory of arms at the same place; and coke is made in various parts of the upper duchy. Some writers mention other manufactures as existing in Anhalt-Bernburg, but they are no longer in operation, or never existed at all. In fact, the inhabitants find full employment in agriculture, mining, and with their woods and forests, which extend over a surface of about sixty-three square miles, or nearly one-fifth of the entire surface of the duchy.

Little is known of the financial state of the duchy. Lindner says, in his excellent work on the three duchies (Dessau, Bernburg, and Köthen), that the revenues may be estimated at 450,000 gulden, about 41,250*l.*, and the amount of public debt at 600,000 gulden, about 55,000*l.*

Anhalt-Bernburg contains seven towns, one market-village, and sixty other villages. In 1830 the number of houses was 6547, and of inhabitants 43,325; of the latter 19,917 in the lower, and 23,408 in the upper duchy. Lindner states the previous increase to have been from 34,193 in 1805 to 37,047 in 1817, and 39,618 in 1827. Upon these data we may assume the present population to be about 45,000 souls.

The form of government is that of an unlimited monarchy. Religion and education are under the controul of the consistory of Bernburg, which is composed of three clerical members and a government assessor, and is independent of the prince in all ecclesiastical matters. A union has been brought about between the members of the Lutheran and Reformed persuasions. The state of public education is very satisfactory; 8000 children, nearly one-fifth of the whole population, attend the national schools, over which local supervision is everywhere exercised. Each bailiwick, town and village supports its own poor, under its own board, with partial assistance from the government, and under the superintendence of the consistory. The medical police of the duchy, and every sanitory regulation, are intrusted to the medical board at Ballenstedt.

The military consist of a corps of sharpshooters, 370 strong, and the company of grenadiers of the ducal guard at Bernburg. The landsturm, or national guards, of 1814 mustered 7328 foot and 140 horse; and the contingent which Anhalt-Bernburg is bound to supply for the army of the German confederation is 370 infantry.

(Lindner, *History and Description of the Country of Anhalt*; Crome's *Anhalt-Bernburg*; Hassel's *States of Germany*; Stein, von Schlieben, &c.)

The seven towns in the duchy of Bernburg are Ballenstedt, Bernburg, Koswig, Harzgerode, Hoym, Gernrode, and Günthersberge:—

Ballenstedt is situated on the summit and side of a hill at the foot of the Lower Harz, in 51° 43′ N. lat., 11° 18′ E. long.; and is composed of the Old Town, encircled by a wall with two entrances, the New Town, which is open, and the avenue and new street, by which the ducal palace on an adjacent hill is united with the town. The Old as well as a portion of the New Town is confined and ill-constructed; but the avenue and new street, which are adorned with two rows of chestnut trees, between which there is a footway with roads outside of them, form a handsome street rather more than a mile in length. The Old Town contains a church, synagogue, hospital, and the public offices. The New Town is embellished with the palace, the main body of which is of antient construction. This residence is beautifully situated, and the view from its elevated terrace is delightful; its appendages are a church, theatre, and riding-house, besides pleasure-grounds, a small picture-gallery, a library of 8000 volumes, chiefly modern, a cabinet of Anhalt coins, and a collection of minerals, which is very complete so far as regards the products of that part of the Harz Mountains which lie within the territory of Anhalt. There are extensive out-offices and yards, called the Vorwerk, also attached to the castle; among them are a spacious sheep-walk, a brewery, where the celebrated 'Ballenstedter Lagerbier' is made, and a vinegar manufactory. Ballenstedt is the residence of the ducal court and the seat of justice, as well as of the medical board and board of works for the duchy. The town is mainly supported by agricultural pursuits, and possesses considerable manufactures of flannel, linens, and pottery-ware. The Geitel, an inconsiderable stream, runs through it, and drives some flour and oil mills; it has four fairs in the course of the year, but they are not of much moment. The population amounted to 1301 souls in 1708, 2500 in 1800, and 3740 in 1830, when it contained several Jewish families. It is the chief place of the bailiwick of the same name, the inhabitants of which are estimated at 6100.

In the upper duchy likewise are *Hoym*, on the Selke, an open town, about five miles north-east of Ballenstedt, with a church, town-hall, three large mills, and about 2300 inhabitants; *Gernrode*, an open, ill-constructed town, built on a declivity at the foot of the Harz, about three miles to the west of Ballenstedt, with two churches, some old monastic buildings, mills, &c., and a population of about 2050 souls; *Günthersberge*, about ten miles south-west of Ballenstedt, an old open town, lying in a small valley encircled by forests, and containing a church, an antient burgh in ruins, and between 700 and 800 inhabitants; and, lastly, *Harzgerode*, situated in a deep hollow, about five miles to the south-west of Ballenstedt, in 51° 38′ N. lat. It is of as early a date as the year 961, is encompassed by a wall, and contains a decayed ducal residence, a church, town-hall, school, and about 2100 inhabitants. It is the seat of the ducal boards of mines, and woods and forests.

Bernburg, the chief town of the districts which compose the lower duchy, and lie along the banks of the Elbe and Saale, is a large town, divided into two nearly equal portions by the Saale, in 51° 47′ N. lat., 11° 45′ E. long., and at a distance of about fifteen miles from the influx of that river into the Elbe. It consists of three quarters, the Old and New Towns on the left bank, and the Bergstadt, or Mount-town, on the right bank of the Saale; the last is open, and the two first are surrounded by a wall with four gates. They are connected by a stone bridge, 173 feet long and 23 feet broad, at the commencement of which, from the Old Town on the north-west side, is a fine gate. From this bridge to the New Town gate runs a handsome street, about 1200 paces in length, part of its line being formed by the market-place; on the whole, the town is well-built, clean, and well-paved. The Mount-town lies partly on the rapid declivity, and partly at the top of the high ground which skirts the Saale. It has rapidly increased on account of the superior eligibility of its site; and contains the castle, situated on a steep hill, in which the heir-apparent usually resides, with an orangery, play-house, riding-house, &c., the town hall, house of industry, mint, and an earthenware manufactory. There are three churches, several old chapels, a synagogue, asylums for orphans and widows, six schools, and many benevolent institutions in Bernburg. Its population was 4018 in the year 1797, and at present amounts to upwards of 6000.

Koswig, likewise in the lower duchy, is a very antient open town, on the right bank of the Elbe, about seven miles west of Wittenberg in Prussian Saxony, and near the extreme eastern border of the duchy. It has a church and chapel, a synagogue, a ducal residence, a brewery, and some small manufactures, with a population of about 2800 souls.

BERNERS, JULYANS, or **JULIANA**, otherwise **BARNERS** or **BARNES**, one of the earliest female writers in England, is supposed to have been born towards the latter end of the fourteenth century at Roding Berners, in the hundred of Dunmow, and county of Essex. The received report is, that she was daughter of Sir James Berners, of Roding Berners, knight, whose son Richard (created Lord Berners in the reign of Henry IV.) was the father of the translator of Froissart; and that she was once prioress of Sopewell Nunnery in Hertfordshire. It seems that she was alive in 1460. Holingshed places her at the close of the reign of Edward IV., calling her 'Julian Bemes, a gentlewoman endued with excellent giftes bothe of body and minde, [who] wrote certaine treatises of hawking and hunting, delighting greatly hirself in those exercises and pastimes. She wrote also a booke of the lawes of armes and knowledge apperteyning to heraldes.' This seems the amount of all the information concerning this lady which can now be traced, and even these scanty particulars have in some instances been doubted. The further particulars which are given in many notices of her appear to have crept in gradually from the desire of successive writers to give something of novelty to their accounts.

The following is the collected title of the treatises attributed to Juliana Berners, as printed together by Wynkyn de Worde in 1486. 'The Treatyses perteynyng to Hawkynge, Huntynge, and Fysshynge with an Angle, and also a right noble Treatyse of the Lygnage of Cot Armours, endynge with a Treatise which specyfyeth of Blasynge of Armys.' Mr. Hazlewood, whose investigations seem to have thrown all the light on the subject of the book and its author of which it is susceptible, narrows the claims of Juliana to a small portion of the treatise on hawking, the whole of the treatise upon hunting, a short list of the beasts of the chace, and another short list of persons, beasts, fowls, &c. The great interest attached to the subjects of this work occasioned the treatises to be among the very first that were put to press on the introduction of printing into this country, when they were printed at the Abbey of St. Albans, on which the nunnery of Sopewell was dependent. The first edition is said to have been printed in 1481, and it is certain that one was printed in 1486. It seems that the person who then prepared them for the press had it in view to furnish a manual of what was considered the useful knowledge of the day, and therefore incorporated in one volume treatises by different hands. The colophon to the treatise on fishing (which is the best of the four), states that it was introduced in order that it might be better known than it would be if 'enprynted allone by itself and put in a lytyll plaunflet.' The colophon to the treatise on heraldry also describes it as translated and compiled at St. Albans. Among its objects, it professes to teach 'how gentylmen shall be knowen from ungentylmen.' The 'Treatise on Hunting,' which is the undoubted work of Juliana Berners, describes the manner in which various animals are to be hunted, and explains the terms employed in venery. The information is hitched into rhyme, but, as Mr. Ellis remarks, 'has no resemblance to poetry.' All the other treatises are in plain prose. A fac-simile reprint of the whole of Wynkyn de Worde's edition, was made in 1810, under the direction of Mr. Hazlewood, whose prefixed dissertations seem to have exhausted every source of information concerning the 'Book of St. Albans.' Only 150 copies of this fac-simile edition were printed. Speaking of this work, Warton remarks: 'From an abbess disposed to turn author we might reasonably have expected a manual of meditations for the closet, or select rules for making salves or distilling strong waters. But the diversions of the field were not thought inconsistent with the character of a religious lady of this eminent rank, who resembled an abbot in respect of exercising an extensive manorial jurisdiction, and who hawked and hunted in common with other ladies of distinction.'

We are quite satisfied with this account; but Hazlewood, who cannot reconcile it with the rigid rules of the Sopewell nunnery, and with the varied and extensive knowledge of the world which the work displays, offers some conjectures as to the history of this remarkable lady, with the view of uniting 'all the supposed characteristics of our authoress, without violating probability or distorting consistency.' As, however, this is all matter of conjecture, we must refer the reader to his prefixed 'Biographical and Bibliographical Notices,' from which, and the annexed reprint, the present article has chiefly been drawn.

(See also Dibdin's continuation of Ames's *Typographical Antiquities*; Warton's *History of English Poetry*; Ellis's *Specimens of the Early English Poets, &c.*)

BERNERS, JOHN BOURCHIER, LORD, was born about the year 1474. He was the eldest son of Sir Humphrey Bourchier, who was the son of Sir John Bourchier, the fourth son of the Earl of Ewe by his wife Anne, daughter of Thomas Duke of Gloucester, the youngest son of Edward III. This Sir John was created Lord Berners in honour of the family of his wife Margery, who was the daughter and heir of Richard Lord Berners, the father, as it is supposed, of Juliana Berners, the authoress of part of the famous book on field-sports. Admitting the presumptive evidence in favour of Juliana's connexion with this family, it is pleasant to find two persons in it, of different sexes, so honourably distinguished,—one as perhaps the earliest female writer of this country, and the other as one of the first noblemen who condescended to think literature worthy of their attention. In this respect he was only preceded in point of time by three noblemen, none of whom equalled him in reputation; for Cobham wrote only just enough to make him an author, and Tiptoft, Earl of Worcester, and Earl Rivers, are more distinguished as patrons of literature than as authors. Fuller, who also mentions Berners as the fourth literary nobleman, prefers him to all of them except Tiptoft; but it is difficult to see the grounds of this exception, as the translations of Tiptoft are not near so important as those of Lord Berners. In this estimate Lord Vaux is not considered as a predecessor but as a contemporary of Lord Berners, and is therefore not included.

The Bourchier family adhered to the house of York during the war of the Roses; and Sir Humphrey Bourchier was killed at the battle of Barnet in 1471 in support of its cause, being, according to Hall, the only person of rank on Edward's side who was slain in the action. His son, the subject of the present notice, succeeded his grandfather when he was only seven years of age; and when he was only eleven the Order of the Bath was given him by Edward IV., on occasion of the betrothment of the young Duke of York to the daughter of the Duke of Norfolk. Lord Berners was sent to Oxford at an early age, as was then the custom, and Wood believes, but is not certain, that he was educated at Balliol College; and adds, 'after he had left the university he travelled into divers countries, and returned a master of several (not *seven*, as some accounts misquote Wood) languages, and a complete gentleman.' His youth and absence prevented him from taking any part in public affairs until Henry VII. had established himself on the throne. It seems, however, that the usurpation of Richard III. made the Bourchier family favourable to Henry. They supported him, and he was ultimately crowned by Cardinal Bourchier, the grand-uncle of Lord Berners.

Lord Berners was first called to parliament in the eleventh of Henry VII. by the style of John Bourgchier, Lord of Berners; and it seems that he had previously attended the king at the siege of Boulogne in the year 1492. He first acquired personal distinction and the favourable regard of the king by the active part he took in putting down a somewhat alarming insurrection which in 1497 broke out in Cornwall, headed by Michael Joseph, a blacksmith, and a lawyer named Flammock, and afterwards supported by Lord Audley. He appears to have become a favourite of Henry VIII. very soon after his accession, and he had the rare fortune of retaining his favour to the last. He was captain of the pioneers at the siege of Terouenne in 1513, during which his attention to the duties of his office appears to have been very serviceable to the army. About two years after he was appointed Chancellor of the Exchequer for life; and about the same time was one of the splendid train of nobles, knights, and ladies appointed to escort to Abbeville the Lady Mary, the king's sister, who by the peace of 1514 was to be married to Louis XII. of France. In the year 1518 Lord Berners was associated with John Kite, Archbishop of Armagh, in an embassy to Spain, ostensibly for the purpose of congratulating the young king Charles on his accession, but in reality in the hope of detaching him from the interests of the French king Francis, and of bringing him over to the views of Wolsey, the pope, and the emperor. No result of importance followed this mission, which departed from Spain in January, 1519, Lord Berners being at that time in very bad health. After this his age and growing infirmities occasioned him to live much in retirement in his government at Calais, to which important office he appears to have been appointed soon after his return from Spain. He remained in this situation until his death, on the 19th of March, 1532, devoting his leisure to those literary undertakings for which alone he is now remembered.

His great work, the translation of Froissart's *Chronicles*, was undertaken by the king's command, and the first volume was printed by Pynson in the year 1523, and the second volume in 1525. For common use this translation has now been superseded by the modern one of Mr. Johnes; but we nevertheless rejoice that Lord Berners's translation was reprinted in 1812, under the direction of Mr. Utterson, who very properly considered that it was still of great value for the appropriate colours with which it pourtrays the manners and customs of our ancestors. 'Considering,' says this editor, 'the unusual task imposed upon him, that of translating so voluminous a work into the English language, which was very seldom used as a vehicle for aught but colloquial purposes, we cannot but feel admiration at the manner in which the task was completed. . . . . This having been the first historical work of magnitude in the English language, the title of a valuable if not the earliest English classic writer, may be conceded to his lordship, although his production was not original.' The other works of Lord Berners are thus characterized by Horace Walpole :—

'Others of his works were a whimsical medley of translations from French, Italian, and Spanish novels, which seem to have been the mode then, as they were afterwards in the reign of Charles II.,

> 'When ev'ry flow'ry courtier wrote romance.'

The following is a list of the works thus noticed : —

'The Hystorye of the moost noble and valyaunt knyght, Arthur of Lytell Brytayne ;' 'The antient, honourable, famous, and delightful Historie of Huon of Bourdeux, enterlaced with the Love of many Ladies ;' 'The Golden Boke of Marcus Aurelius ;' all translations from the French. 'The Castle of Love,' from the Spanish. He also composed a work, 'Of the Duties of the Inhabitants of Calais ;' and a comedy called, 'Ite in vineam meam,' which was usually acted in the great church of Calais after vespers. Neither of the two last-named works were printed, and it is not known whether the comedy was in Latin or English.

(Preface to Utterson's edition of Lord Berners' translation: Wood's *Athenæ Oxonienses*, by Bliss; Walpole's *Royal and Noble Authors*, &c.)

BERNI, FRANCESCO, was born about 1490 at Lamporecchio, a village of the Val di Nievole in Tuscany, of a noble but poor family. He studied for the church, and became a priest. Having gone to Rome to try his fortune, he entered the service of Cardinal Divizio da Bibbiena, his countryman and relative, who was in great favour with Leo X. After the cardinal's death, he passed into the service of the cardinal's nephew, Angelo Divizio, a prelate of the court of Rome. We are not told in what capacity he served either the uncle or the nephew, but Berni complains that neither of them did any thing to better his fortune, and he says he was driven by want to seek a more liberal master. His next employment was as secretary to Ghiberti, who was datario to Pope Clement VII., and also bishop of Verona; but, according to his own confession, he found himself little qualified for his office. In fact, Berni was idle, dissipated, and continually in love with some woman or other. He contrived, however, to remain with Ghiberti for seven years, during which he accompanied his master, or was sent by him on business, to several parts of Italy. He was present at the plunder of Rome by the Spaniards and Germans in 1527, of which he speaks in his 'Orlando Innamorato.' (See canto xiv. st. 23-27 of Molini's edition, Florence, 1827.) About the year 1530, or 1531, he left Ghiberti and went to Florence, where he was made a canon of the cathedral, a preferment which enabled him to live in a sort of affluence for the rest of his days. His facetiousness and social conviviality recommended him to the Duke Alessandro, as well as to his cousin, Cardinal Ippolito de' Medici, the son of Giuliano, and nephew of Leo X. The two cousins were secret enemies, and Cardinal Ippolito, through jealousy or ambition, favoured the projects of the Florentine malcontents, who wished to shake off the tyrannical yoke of Duke Alessandro. Ippolito, however, died suddenly in 1535, of poison administered to him by one of his domestics, at the instigation, as was generally believed, of the duke. A story became current soon after, that Berni, who was intimate with both, had been solicited by Alessandro to poison Ippolito, and at the same time by Ippolito to poison Alessandro, and that, in consequence of his refusal, he was himself poisoned by one of the two rivals. But Berni survived Ippolito one year, when neither the cardinal could any longer poison him, nor the duke stood any more in need of Berni's instrumentality. Besides, the well-known jocular, good-humoured, and careless disposition of Berni renders it unlikely that he could be thought a fit instrument for such a crime. Accordingly, Mazzuchelli and other critics have utterly discarded the story as having no foundation in truth.

The epoch of Berni's death has been long a matter of dispute : some place it in 1543, but Molini, in the introduction to his edition of the 'Orlando' above-mentioned, fixes it on the 26th of May, 1536, on the authority of Salvino Salvini's chronological register of the canons of the cathedral. The latter years of Berni's life were spent at Florence or in its neighbourhood, in a dissipated sort of existence. That was an age of general profligacy, and Berni shared in the common licentiousness, though he must not be compared in this respect with Aretino and others of his notorious contemporaries. The very fact of his remaining for seven years with Ghiberti, a prelate generally respected for his conduct, shows that Berni could not be such an abandoned character as he has been supposed by some. Berni's poetry though often licentious, according to the universal taste of the times, exhibits many traits of moral feeling which seem incompatible with total depravity.

Berni is the principal writer of Italian jocose poetry, which has ever since retained the name of *poesia Bernesca*. Burchiello, Pucci, Bellincioni, and others, had introduced this style of poetry before him, but Berni gave it a variety of forms, and carried it to a perfection which has seldom been equalled by any one since. Berni had an inexhaustible fund of humour, and a most quick perception of the absurd and ridiculous. His lively imagination placed in juxtaposition the most incongruous images and ideas, and thus derived fresh food for pleasantry from its own invention. Berni's reading of the Latin and Italian writers was extensive, and he often alludes to them for the purpose of contrasting some of their lofty images with others which are trivial. In one of his 'Capitoli,' which he addresses to Ghiberti's French cook, after giving an account of Aristotle's works, he exclaims at the end, in a tone of apparently sincere regret, 'what a pity it is that Aristotle did not write also a work on cookery !' In another place, complaining of a mule which a friend had lent him for an excursion, and which was continually stumbling on the road, he says that it had the power of conjuring up stones from the very bottom of one of the circles of Dante's 'Hell,' as if for the express purpose of knocking its feet against them. In a chapter which he wrote in praise of the plague, he discovers a number of advantages resulting to mankind from that scourge. At other times he is satirical on the real vices and follies of courts and princes. His description of the irresolute, timorous, time-gaining policy of the court of Rome under Clement VII., is characteristic :—

> 'Un Papato composto di rispetti,
> Di considerazioni, e di discorsi,
> Di più, di poi, di ma, di sì, di forsi,
> Di pur, di assai parole senza effetti.'

His satire is generally of the milder sort, but at times it rises to a most bitter strain of invective. Such, for instance, is his 'Capitolo' against Pope Adrian VI., whose very virtues made him unpopular with the Romans. Berni's humour may be said to be untranslateable, for it depends on the genius of the Italian language, the constitution of the Italian mind, and the habits and associations of the Italian people. Berni's expressions are carefully and happily selected for effect, and although he speaks of the haste in which he wrote, it is proved by the MSS. of his burlesque poems that he corrected and recorrected every line. (See Mazzuchelli, *Scrittori d'Italia*, art. 'Berni.') His language is choice Tuscan. The worst feature in Berni's humourous poems is his frequent licentious allusions and equivocations, which, although clothed in decent language, are well understood by Italian readers. Berni's poems were not collected till after his death, with the exception of one or two published in his lifetime. The first edition of part of his poems was made at Ferrara in 1537. Grazzini published one volume of Berni's *Poesie Burlesche*, together with those of Mauro, Varchi, Della Casa, &c., in 1548. A second volume appeared in 1555; a third volume was published at Naples with the date of Florence, in 1723. There is also an edition of the *Poesie Burlesche* in two vols. 8vo. London, 1721-24, with notes by Salvini.

Berni is also known for his 'Rifacimento,' or recasting of

Bojardo's poem 'Orlando Innamorato.' [See BOJARDO.] Berni altered the diction of the poem into purer Italian, but he left the narrative exactly as it was from beginning to end. He also added some introductory stanzas, moral or satirical, to most of the cantos, in imitation of Ariosto's practice, and also a few episodical sketches in the body of the poem, the principal of which is that in canto 67, where he describes himself and his habits of life. It cannot be maintained that Berni has turned Bojardo's serious poem into burlesque: he merely steps in as a third person, after the fashion of the old story-tellers, between the original poet and the audience, moralizing upon what he relates, or reverting, from the errors and follies of his heroes, to the vices and follies of men in the every-day world. The sincerity and simplicity of his practical moralizing strain contrasts with the prodigious and absurd magnificence of the romantic narrative, which Berni, however, relates with all the appearance of credulity. Some of Berni's openings to the various cantos are remarkably fine, and perhaps superior to those in Ariosto's poem. With regard to his alterations of Bojardo's text, it is generally allowed that he has improved it in many parts, though not in every instance. (See Panizzi's remarks on Berni's *Rifacimento*, in vol. ii. of his edition of *Bojardo and Ariosto*, London, 1831.) It appears also that several parts of the 'Rifacimento,' such as we have it, and which are very inferior to the rest, were either not written by Berni, or have not received from the author the last correction and polish. There are discrepancies between the various editions, and no autograph of Berni's 'Orlando' is known to exist, or has ever been mentioned by any of its various editors. The poem was not published till after Berni's death. The first eighty-two stanzas of the first canto as given in the Giunti edition, Venice, 1515, are quite different from those in the first edition of the poem in 1541. The text of 1545 is now adopted as most resembling Berni's style, and has been followed by Molini in his edition of the 'Innamorato,' Florence, 1827, which is considered as the most accurate. There are still doubts about the genuineness of the remaining stanzas of the first canto, from lxxxiii. to the end, of some of the second canto, and of the whole of the two last cantos, lxviii. and lxix., of the poem. The earlier editions of Berni's 'Rifacimento,' 1541-45, are entitled, 'Orlando Innamorato composto già dal Signor Matteo Maria Bojardo, Conte di Scandiano, e rifatto tutto di nuovo da M. Francesco Berni.' In course of time, however, the name of Bojardo was almost forgotten, and the 'Orlando Innamorato' went by the name of Berni, as if he had been the real author of the poem. Berni has not added any indecent interpolations to Bojardo's poems, as some have superficially supposed; he has, on the contrary, left out, in one instance, some licentious though fine stanzas of the original. (See Panizzi's 'Remarks' above quoted.) Stewart Rose has given an analysis of the 'Innamorato' in English prose, intermixed with verse, London, 1823.

Berni wrote some Latin poems, which were published at Florence in 1562 in the Collection, 'Carmina quinque Etruscorum Poetarum.' They have been praised by Tiraboschi as happy imitations of the style of Catullus.

He wrote also 'La Catrina' and 'Il Mogliazzo,' which are dramatic scenes in 'lingua rustica,' or idiom of the Florentine peasantry, Florence, 1537-1567.

Berni's letters are scattered through several collections, in Atanagi's *Lettere Facete di Diversi*, in Manuzio's *Lettere Volgari*, and in the *Nuova Scelta di Lettere* by Pino.

Berni is an author who ought to be attentively studied by Italian scholars. His mastery over his language, and the ease and purity of his diction, have been seldom equalled. His humour, though often broad, is not low; it is sharp and clever. His skill is not easily appreciated, because it is clothed with the appearance of extreme simplicity.

There was another Francesco Berni, of Ferrara, who lived in the seventeenth century, and wrote several poetical works.

(See Mazzuchelli, *Scrittori d'Italia*; Stewart Rose's *Life of Berni*, prefixed to his *Analysis of the Innamorato*; Panizzi's *Life of Bojardo.*)

BERNICLE GOOSE, or CLAKIS. (Zoology.) The vernacular name for the *bernicla* of Ray, *Anser bernicla* of Fleming: the *bernicle*, *bernacle goose*, and *barnacle goose* of authors. This bird affords an instance of the credulity with which those who, in their generation, were held wise and learned, accepted the most absurd traditions, and handed them down to posterity with the additional weight of their authority. A cirrhhiped, a marine testaceous animal, the *Pentelasmis anatifera* of Leach, *Anatifa lævis* of Bruguières, the duck barnacle of collectors, was long asserted to be the parent of the bernicle goose. This common shell is fixed to a long, fleshy peduncle, and is frequently found attached to floating timber. The tentacula, which proceed from the anterior opening of the valves, have an appearance that recalls to the mind of a casual inaccurate observer the recollection of a feather, and hence, in all probability, the fable took its origin. 'Some,' writes Nuttall, 'even described these supposed embryos as fruits, in whose structure already appeared the lineaments of a fowl, and which, being forthwith dropped into the sea, turned directly into birds. Munster, Saxo Grammaticus, and Scaliger even, asserted this absurdity. Fulgosus affirmed that the trees which bore these wonderful fruits resembled willows, producing at the ends of their branches small swelled balls containing the embryo of a duck, suspended by the bill, which when ripe fell off into the sea and took wing. Bishop Leslie, Torquemada, Odericus, the Bishop Olaus Magnus, and a learned cardinal, all attested to the truth of their monstrous generation. Hence the bird has been called the *tree goose*, and one of the Orkneys, the scene of the prodigy, has received the appellation of Pomona.'

Not to weary the reader with names, and some of great reputation might be added, we will proceed to trace the fable as told by Gerard, merely adding, by the way, that one of the other worthies is recorded to have opened a hundred of the goose-bearing shells, and to have found in all of them the rudiments of the bird completely formed. Gerard, then, as if determined that no sceptic should have the slightest ground whereon to rest a doubt, thus gives his evidence in his *Herbal*:—

'But what our eyes have scene and hands have touched we shall declare. There is a small island in Lancashire called the Pile of Foulders, wherein are found the broken pieces of old and bruised ships, some whereof have been cast thither by shipwracke, and also the trunks and bodies with the branches of old and rotten trees, cast up there likewise; whereon is found a certaine spume, or froth, that in time breedeth unto certaine shels, in shape like those of the muskle, but sharper pointed, and of a whitish colour; wherein is contained a thing in form like a lace of silke finely woven, as it were, together, of a whitish colour; one end whereof is fastened unto the inside of the shell, even as the fish of oisters and muskles are: the other end is made fast unto the belly of a rude masse or lumpe, which in time commeth to the shape and form of a bird: when it is perfectly formed the shell gapeth open, and the first thing that appeareth is the foresaid lace or string; next come the legs of the bird hanging out, and as it groweth greater it openeth the shell by degrees, till at length it is all come forth and hangeth only by the bill: in short space after it commeth to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a fowle bigger than a mallard and lesser than a goose, having blacke legs and bill or beake, and feathers blacke and white, spotted in such manner as is our mag-pie, called in some places a pie-annet, which the people of Lancashire call by no other name than a tree goose; which place aforesaid, and all those parts adjoining, do so much abound therewith, that one of the best is bought for three pence. For the truth hereof, if any doubt, may it please them to repaire unto me, and I shall satisfie them by the testimonie of good witnesses.' This edifying deposition is illustrated by a cut of the goose and of its parent shell.

Now, after this, can we wonder at the melancholy catalogue of human beings who have expiated the supposed crime of witchcraft at the stake on the testimony of their deluded and deluding prosecutors? Here is a man of learning, and of considerable accuracy in many points, the author of a valuable work containing much information, who gravely and deliberately, on the authority of two of the most acute of his senses, asserts a downright falsehood and courts investigation. He may, moreover, be acquitted of any intention to deceive; but his mind was filled with previous assertions and preconceived opinions, and his excited imagination, like that of the majority of the witnesses against the unfortunate witches, gave a colour and a form to all he saw and felt.

Gerard published this celebrated romance in 1636. If we now turn to Ray's 'Willughby,' published in 1678, we shall see what a progress had been made towards truth, even in that short space of time. 'What is reported concerning the rise and original of these birds, to wit, that they are bred of rotten wood; for instance, of the masts, ribs, and planks of broken ships, half putrified and corrupted, or of certain palms of trees falling into the sea: or lastly, of a kind of sea-shells, the figures whereof Lobel, Gerard, and others have set forth, may be seen in Aldrovand, Sennertus in his Hypomnemata, Michael Meyerus, who hath written an entire book concerning the tree-fowl, and many others. But that all these stories are false and fabulous I am confidently persuaded. Neither do these want sufficient arguments to induce the lovers of truth to be of our opinion, and to convince the gainsayers. For in the whole genus of birds (excepting the phœnix, whose reputed original is without doubt fabulous) there is not any one example of equivocal or spontaneous generation. Among other animals indeed, the lesser and more imperfect, as for example many insects and frogs, are commonly thought either to be of spontaneous original, or to come of different seeds and principles. But the greater animals and perfect in their kind, such as is among birds the goose, no philosopher would ever admit to be in this manner produced. Secondly, those shells in which they affirm these birds to be bred, and to come forth by a strange metamorphosis, do most certainly contain an animal of their own kind, and not transmutable into any other thing, concerning which the reader may please to consult that curious naturalist Fabius Columna. These shells we ourselves have seen, once at Venice, growing in great abundance to the keel of an old ship; a second time in the Mediterranean Sea, growing to the back of a tortoise we took between Sicily and Malta. Columna makes the shell-fish to be a kind of *Balanus marinus*. Thirdly, that these geese do lay eggs after the manner of other birds, sit on them and hatch their young, the Hollanders in their northern voyages affirm themselves to have found by experience.'

Here we see the clouds that had obscured the subject nearly cleared away, though there is still a little lingering error in the tacit admission of the spontaneous generation of the frogs and insects.

It is no small praise to Belon and some others, that, even in their early time, they treated this fable of the duck-bearing tree with contempt. There has been much confusion in the nomenclature of this bird. Linnæus considered it as the male of *Anser erythropus* (white-fronted wild goose), and treated *Anser brenta* (the brent-goose), and *A. bernicla* as synonyms. Succeeding writers continued the mistake, till Temminck and Bechstein, instead of restoring the name given to it by the older ornithologists, called it *Anser leucopsis*, but did not refer the specific name *Erythropus* to the *Anas albifrons* of Gmelin and Latham.

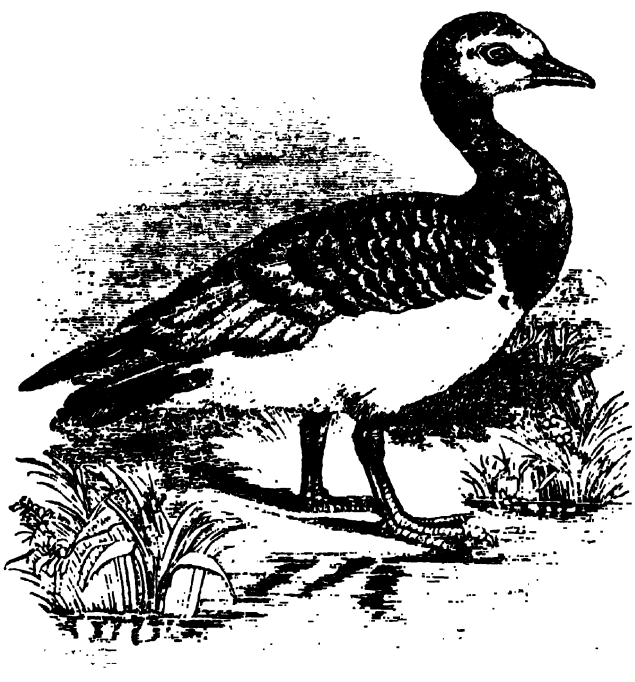
Dr. Fleming, in his 'History of British Animals,' set this right, and has properly described the bernicle-goose as *Anser bernicla*, and the white-fronted wild-goose as *Anser erythropus*.

The summer haunts of the bernicle reach high into northern latitudes. Iceland, Spitzbergen, Greenland, Lapland, the north of Russia and of Asia, and Hudson's Bay, are recorded as its breeding places. Dr. Richardson notes it as accidental on the Saskatchewan (53 54′ N. lat.) as a passenger in spring and autumn, and gives the southern states of the North American Union as its winter quarters. It visits Britain in the autumn, appearing in great numbers on the north-western coasts, and in the north of Ireland. On the eastern and southern shores of Britain it is comparatively rare, and the Brent-goose occupies its place.

The weight of a bernicle is about five pounds, the length rather more than two feet, and the breadth about four and a half with the wings spread. The bill, about an inch and a half long, is black, with a reddish streak on each side, and between it and the eyes is a small black streak. Irides brown; head (to the crown), cheeks, and throat white; the rest of the head, neck, and shoulders black. Upper part of the plumage marbled with blue, grey, black, and white; belly and tail coverts white; tail black; flanks ashy grey; legs and feet dusky.

The eye-streak is much broader in the young of the year than in the adult; the under parts are not of so pure a white, and the upper plumage is darker.

The flesh is excellent.



[Bernicle goose.]

Bernicla Sandvicensis, Vig., the Sandwich Island goose, hatched young in the year 1834 at Knowsley in Lancashire. One of the goslings still lives and thrives (the others were killed by accident), and Lord Stanley (now Earl of Derby) has little doubt that these Sandwich Island geese may, with care and attention, be easily established, and form a valuable addition to the stock of British domesticated fowls. (See *Proceedings of the Zoological Society*.)

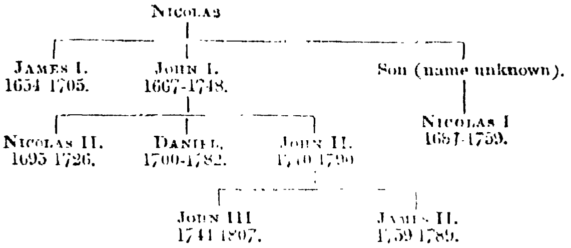
BERNI'NI, GIOVANNI LORENZO, born at Naples in 1598, was the son of Pietro Bernini, a Florentine painter and sculptor. While young Bernini was still a child, his father removed with his family to Rome, being commissioned by Pope Paul V. to work at the Borghese Chapel in Santa Maria Maggiore. Young Bernini showed a remarkable disposition for sculpture; and at ten years of age having made a head in marble, which was generally admired, the pope sent for him, and recommended him to the care of Cardinal Maffeo Barberini. At seventeen years of age Bernini made the fine group of Apollo and Daphne, which was afterwards placed in the Villa Borghese. He studied architecture at the same time, as well as sculpture. Gregory XV., who succeeded Paul V., employed him in several works, bestowed on him pensions, and made him a knight. After Gregory's death, when Cardinal Barberini was elected pope under the name of Urban VIII., Bernini became his favourite architect and sculptor, and then executed the great works which have established his fame: we can only mention the principal:— 1. The Confession of St. Peter's, *i. e.* the bronze columns and canopy under the dome, at which he worked for nine years, and for which he received 10,000 scudi, besides a pension and two livings for his brothers; 2. The palace Barberini and the fountain in the square before it; 3. The front of the College de Propaganda Fide; 4. Several other fountains in Rome; 5. Various works and ornaments in the interior of St. Peter's; among others the niches and staircases in the piers which support the cupola, and for which he was charged by superficial critics with having occasioned the cracks that showed themselves in the dome about that time. But the piers had been made hollow from the beginning; and it was afterwards proved by the examinations of Poleni and other architects that the cracks in the dome were occasioned by other causes. (See Milizia's lives of Bernini, Carlo Fontana, and Vanvitelli.) Among his other works Bernini made a head of Charles I. of England, for which he was handsomely remunerated. Cardinal Mazarin invited him to France, and offered him a rich pension; but Pope Urban would not hear of his leaving Rome, nor was Bernini himself inclined to go. When forty years of age Bernini married Caterina Fezi, the daughter of a respectable citizen of Rome. His life from that time became extremely regular; he lived frugally, worked bad and assiduously, being sometimes for seven hours together at his chisel. He did not interrupt his work for any strangers who came to visit his study, whether princes or cardinals; they stepped softly in, and sat down to look at him in silence. Under the pontificate of Innocent X., who succeeded Urban VIII., Bernini made the great fountain in the Piazza Navona, and he also began the palace of Monte Citorio. By Alexander VII. he was commissioned to execute the great work of the piazza before St. Peter's; he made the splendid colonnade and also the great staircase leading from the portico of the church to the Vatican palace. He next made the Cattedra, or great chair of St. Peter's, of gilt bronze. The palace Bracciano at Santi Apostoli is also one of his works, though not among the best. The elegant church of Sant' Andrea à Monte Cavallo is likewise by him.

Louis XIV. wrote to Bernini in 1665, urgently inviting him to come to Paris, in order to superintend some of his buildings, and especially that of the Louvre. The French ambassador at the court of Rome, Duke of Crequi, applied to Pope Alexander in his master's name to the same effect. Bernini hesitated a while, but at last set off. His journey was a triumphal procession: he made his public entrance into Florence, and was received by the Grand Duke with the greatest honours. He met with a similar reception at Turin, at Lyons, and every where on the road. The Nunzio went out of Paris to meet him. He was received at the court of Louis as a man whose presence honoured France. When Bernini however saw the front of the Louvre, which looks toward the church of St. Germain, and which was then being executed after the design of Claude Perrault, he candidly said, that a country which had architects of that stamp stood in no need of him, and accordingly he did nothing at Paris in the way of architecture. He remained for about eight months in that capital, and was employed in several works of sculpture, among others a bust of Louis XIV., for which he was most splendidly remunerated. On his return to Rome, in token of gratitude, he made an equestrian statue of Louis XIV., which was afterwards placed at Versailles. Clement IX., who succeeded Alexander VII., employed Bernini in several works, among others, the balustrades on the bridge of Sant' Angelo, the Villa Rospigliosi near Pistoja, and the altar of the Rospigliosi Chapel at Pistoja. When eighty years of age, Bernini executed a Christ in marble, and presented it to Queen Christina of Sweden, who had been his constant patroness, but she declined to accept it, saying that she was not rich enough to pay for it as it deserved. Bernini however bequeathed the statue to her by his will. He died at Rome in 1680, eighty-two years of age, honoured and regretted by all, and was buried in the church of Santa Maria Maggiore. He left a property of about 400,000 scudi, nearly 100,000*l.* sterling. He was one of the most successful and best remunerated artists that has ever lived.

Bernini was hasty and naturally passionate, but warm-hearted, charitable, and an enemy to envy and slander. He was of a lively disposition, and fond of theatrical performances, in which he sometimes acted a part. He was a painter as well as sculptor, and left about 150 paintings, most of which were purchased for the galleries of Barberini and Ghigi. Of his works of sculpture and architecture, which are very numerous, Milizia gives a list in his life of Bernini. (Milizia, *Vite degli Architetti.*) The mausoleums of Alexander VII., of Urban VIII., and of the Countess Matilda, in St. Peter's Church, are by him. Softness and finish of execution are the characteristics of Bernini's sculpture: he did not succeed so well in beauty of design and form. In his likenesses he is said to have been very successful. With regard to architecture his works are elegant and pleasing in their general effect, though often faulty in some of their parts. He multiplied ornaments; he did not always maintain the character of the respective styles: he intermixed curved with straight lines; in short, instead of simplicity, he often followed his own elegant caprice. (Milizia, *Vita del Bernini.*) Some of his disciples and imitators carried his faults farther than their master. Bernini however never fell into the extravagant vagaries of his contemporary Borromini. Mattia de' Rossi was Bernini's favourite pupil. Carlo Fontana was also one of his disciples.

BERNOULLI, the name of a family which is known in the history of mathematics by the services of *eight* of its members. These are not all of equal, or nearly equal celebrity; but it is necessary to notice each, not only to enable the reader to avoid the confusion which so large a number of similar names has introduced into historical writings, but also because a moderate degree of reputation becomes remarkable, when it forms part of so conspicuous a mass. The Cassinis (of whom four are well known in astronomy) present a similar phenomenon in the history of knowledge.

The family of the Bernoullis is said to have originally belonged to Antwerp, and to have emigrated to Frankfort to avoid the religious persecution under the Duke of Alva: it finally settled at Basle. Nicolas Bernoulli, the immediate ancestor of the subjects of this notice, held a high station in that republic, and was succeeded in it by a son, now unknown. He had eleven children, of whom two are the most distinguished of the eight Bernoullis, and another, whose name we cannot find, was the father of a third. But the whole connexion will be better understood by the following genealogical diagram, which includes the common ancestor and the eight descendants in question. The years of birth and death are added:—



However distinguished these men may be, the events of their lives are of comparatively little interest, except as connected with the history of the sciences which they cultivated; and of their works it would be impossible to treat to an extent corresponding to their reputation or utility, without writing the history of mathematics for a century. We shall, therefore, here confine ourselves—1. To the principal events of their lives. 2. To the mention of such of their researches as are most connected with their personal characters. 3. To a very short account of the position which their labours occupy in the chain of investigation.

James Bernoulli I., was born at Basle, December 27th, 1654. His father intended that he should be a divine, and had him taught the classics and scholastic philosophy, but no mathematics. Accident threw geometrical books in his way, and he studied them with ardour, in spite of the opposition of his father. He took for his device Phaëton driving the chariot of the Sun, with the motto, *Invito patre sidera verso.* At the age of twenty-two he travelled to Geneva, and from thence to France. It is recorded of him that at the former place he taught a blind girl to write, and that at Bordeaux he prepared gnomonical tables. At his return, in 1680, he began to study the philosophy of Descartes.

The comet of 1680 drew from him his *Conamen Novi Systematis, &c.*, an attempt to explain the phenomena of those bodies. He imagined that they were satellites of a planet too distant to be visible, and thence conjectured that their returns might be calculated. With regard to the question of their predictive faculties, he supposes that the head of the comet, being durable, denotes nothing, but that the tail, being accidental, may be a symbol of the anger of heaven. M. Fontenelle, as became the writer of an *éloge*, calls this a *ménagement pour l'opinion populaire*; but we cannot follow him in viewing it as such.

In 1682 he published his treatise *De Gravitate Ætheris*, now of little note. His lasting fame dates from the year 1684, in which Leibnitz published his first essays on the Differential Calculus in the Leipzig Acts. From this time he and his brother John applied themselves to the new science with a success and to an extent which made Leibnitz declare that it was as much theirs as his.

In 1687 he was elected professor of mathematics at the University of Basle. His celebrity attracted many foreigners to that place, and his researches on the theory of series were investigations undertaken as official exercises.

The integral calculus was first inquired into by James Bernoulli, in two essays published in 1691. His future labours were, in a great measure, developments of the inexhaustible method of investigation just named. Of that part which concerns his brother as well as himself we shall presently speak. He died at Basle of a slow fever, August 16, 1705, in his fifty-first year. After the example of Archimedes, he ordered that one of his discoveries should be engraved on his tomb. It was a drawing of the curve called by mathematicians the logarithmic spiral, with the inscription *Eadem mutata resurgo:* a double allusion, first, to his hope of a resurrection, next, to the remarkable properties of the curve, well known to mathematicians, which consist in this, that many operations which, in most instances, convert one curve into another, in the logarithmic spiral only reproduce the original.

M. Fontenelle, his contemporary, says, 'M. Bernoulli was of a bilious and melancholy temperament, a character which, more than any other, gives the zeal and perseverance necessary for great things. . . . . In all his researches his march was slow and sure; neither his genius nor his habit of success inspired him with confidence; he published nothing without handling it over and over again; and he never ceased to fear the public which held him in so much veneration.' It is worth while to observe that the above was written in the year of his death, and before the opportunity of reviewing his brother's career could furnish temptation to exaggerate points of contrast; and before we quit this subject, we may observe that the career of James Bernoulli is, on one point, a contradiction to a favourite theory, a consequence of the generalising spirit in which biographies are frequently written. The qualities of the man in question, be he who he may, are made the necessary accompaniments of all who distinguish themselves in a similar way. Thus, because several great mathematicians have originated their best discoveries very young, it is laid down as a sort of law of nature that they should always do so: but James Bernoulli did nothing which would have made him famous, even among contemporaries, till after he was thirty years old, and then not from a principle of his own, but from a hint thrown out by Leibnitz, and which [see Barrow] we might almost imagine his own genius would have seized. Yet he is one of the most original mathematicians that ever lived.

He was married, and left a son and daughter. His 'Ars Conjectandi,' one of the earliest works on the theory of probabilities, and his treatise on series, were published posthumously in 1713, under the care of Nicolas Bernoulli the elder. Part of it was republished by Baron Maseres in 1795, in a volume of tracts. His complete works were published at Geneva, 1744, in two vols. 4to. There is a letter of his in the *Journal de Physique*, September, 1792, which will be presently alluded to. He edited the Geometry of Descartes, in 1695.

(See *éloge* by Fontenelle, in the collection; the memoir by Lacroix in the *Biographie Universelle;* Montucla, *Hist. des Math.*, throughout: and the Preface to Lacroix, *Calc. Diff. et Int.*)

John Bernoulli I., brother of the preceding, was born July 27th, 1667 (old style). He was the ninth child of his father, who intended him for commercial pursuits, and sent him to the University at Basle in 1682, where, like his brother, he found his own vocation. He was made master of arts in 1685, on which occasion he read a thesis in Greek verse, in refutation, we suppose, of the divine right, &c., the subject being, that *the prince is made for his subjects.*

He then studied medicine, and in 1690 published a dissertation on effervescence and fermentation: but he soon began to apply himself to mathematics. In 1690 he travelled to Geneva and into France, where he formed many acquaintances, with such men as Malebranche, the Cassinis, De l'Hôpital, &c. He returned to Basle in 1692, and from that time dates his correspondence with Leibnitz. It is well known how strenuously he defended the cause of the latter in the dispute about the invention of fluxions, which will appear in its proper place, and the vigorous war of problems which he maintained with the English school. In 1693 (our authority the *éloge* of the Berlin Academy, in Formey's collection of 1757, says 1691, but this must be a misprint) he was elected professor of mathematics at Wolfenbuttel; but on his marriage with a lady of Basle, named Dorothea Falckner, March 6th, 1694, he returned to his own country, was received doctor of medicine, and kept a public act on the Motion of the Muscles.

In 1695 he accepted a professorship at Groningen, at which place he remained till he succeeded his brother James at Basle in 1705, where he died January 1st, 1748. We shall have to speak of five of his descendants. He published no separate works, but his memoirs are to be found in all the scientific transactions of his day. They were collected in four quarto volumes by Cramer, and published at Lausanne and Geneva in 1742. His correspondence with Leibnitz was published in two vols. 4to. at the same places, in 1745.

The author of the *éloge* already cited says, that the qualities of his heart were not less estimable than those of his head, and that he was 'juste, droit, sincere, et pieux.' To the last quality he has an undoubted right; but his whole history is an unfortunate example of impetuosity of temper and narrowness of mind, which betrayed him into a want of fairness, almost amounting to baseness. The assertion of the eulogist is, as the reader will see, a tolerable specimen of the extent to which such productions may be trusted as to points of personal disposition and manners. The celebrated dispute with James Bernoulli is of a character unique in history, and forms an episode so characteristic of the state of science at the period, as well as of the dispositions of the two celebrated brothers, that it is worth while to dwell a little upon it.

Before the mathematical sciences were possessed of general methods of investigation, problems of which hundreds are now soluble by one process were so many separate questions with separate difficulties. It had been the practice of centuries for mathematicians who had found a particular solution of any case, to propose the question as a challenge to others. In the years preceding 1696 John Bernoulli had showered new problems upon the world, which though addressed to all, were generally considered as particularly aimed at his elder brother, of whose established reputation he seems to have been jealous. In 1696 John Bernoulli proposed the well known problem of the *brachistochron*, or 'to find the curve on which a material point will fall from one given point to another in the least possible time.' This was answered by Leibnitz, Newton, James Bernoulli, and De l'Hôpital: but the third hit upon a method of solving more general questions of the same kind; and feeling perhaps that it was time to assert the superiority which his age and reputation might be supposed to give him, returned a counter-challenge with his solution. It was a problem of a much more general and abstruse character, one limited case of which is the following: 'Of all the curve lines which can be described on a given rectilinear base, and of a given length, to find that which contains the greatest area.' He added another, which amounted to asking for the curve of quickest descent, not from a point to a point, but from a point to a given straight line: and ended by stating that a person of his acquaintance (probably himself) would give his brother due praise, and fifty florins besides, if he would solve these problems within three months, and publish his solutions within a year. John Bernoulli, in an answer published immediately afterwards (for private correspondence between the brothers had ceased), praises the solutions which Newton, Leibnitz, and De l'Hôpital had given of his problem, and admits the correctness of that of his brother, but reproaches him with the time he had employed upon it. He goes on to say, that as to his brother's new problems, they were in reality contained in his own; that difficult as they might appear, he had immediately overcome them; that instead of three months, it only took him three minutes to penetrate the whole mystery. He sent the results of his solutions accordingly, and required fulfilment of the promise: adding, that as it had cost him too little trouble to gain the money, he should give it to the poor. He had in fact solved the second problem, which as he truly stated, is not of difficult deduction from his own; but he deceived himself as to the first. James Bernoulli quietly answered, in the *Journal des Savans* for February, 1698, that his brother's solution was wrong; that if no one published any further solution, he would engage, 1. To find out what his brother's method had been; 2. Whatever it was, to show that it was wrong; 3. To give a true solution of the problem. And he added, that whatever sum any one would undertake to give him for succeeding in each of the three undertakings, he would forfeit as much if he failed in the first, twice as much if he failed in the second, and three times as much if he failed in the third. The positive tone of this announcement alarmed John Bernoulli, who well knew that his brother was not a man to be much mistaken when he spoke so strongly; and he accordingly looked again at his solution, corrected it as he thought, admitted that he had been too precipitate, and again demanded the reward. He proposed also another problem, for the solution of which he offered 200 florins, if done within the year. James Bernoulli replied, 'I recommend my brother to look again at his last solution, and to say whether he still thinks it right; and I declare that when I shall have published mine, pretexts of precipitation will not be listened to.' John Bernoulli answered, that he would not revise his solution, and that his time was better employed in making new discoveries. James Bernoulli replied, that if in *three minutes* he had solved the whole mystery, surely *six minutes* more would not much diminish the number of his new discoveries. After some further communications, in the course of which John Bernoulli sent the demonstration of his solution to Leibnitz (who declined giving any positive opinion), and declared that he would say no more on the subject, James Bernoulli published his own solutions, with those of other problems, without demonstrations. in the Leipzig Acts for June, 1700. He also printed at Basle a letter to his brother, in which he invites him to publish his method, and sends his own solution, without demonstration. John Bernoulli, though now in possession of the true result, could not see where he was wrong; perhaps *would not*, for a material part of this letter was suppressed *at his desire* in the posthumous edition of his brother's works. (It was reprinted whole in 1792, as already mentioned.) John Bernoulli replied, by sending his own demonstration under cover to the Academy of Sciences, at Paris, to be opened so soon as his brother should send his. On this, James Bernoulli (March, 1701) published his own solution at Basle, and also in the Leipzig Acts *with the demonstration*. De L'Hôpital and Leibnitz immediately admitted its correctness, and made John Bernoulli acquainted with their opinion. But no more was heard from the latter; he continued obstinately silent as long as his brother was alive, nor was it till 1706, after the death of James Bernoulli, that he published an incorrect solution in the memoirs of the academy. The inference is obvious, that he suspected the incorrectness of his own method, and was afraid to expose it to the searching eye of his brother; but that when the latter was dead, he did not fear that any other person in Europe would be able to expose him. As late as 1718, he published a correct solution, and admitted that he had been mistaken; but he had not the fairness to add, that his new solution was only that of his brother in another shape.

After the preceding account, which is now undisputed, the reader will not be surprised to be told, that after the deaths of Leibnitz and De L'Hôpital, their bosom friend John Bernoulli endeavoured to rob them both. He claimed to be a contemporaneous inventor of a method of the former (that which was called the *differentiatio de curva in curvam*), of which he had said in admiration, when it was first produced, that 'the god of geometry had admitted Leibnitz farther into his sanctuary than himself.' And here too, if either of the brothers can be said to have invented that method as well as Leibnitz, it was *James* Bernoulli. He also advanced an absurd pretension to be the author of all that was new in the *Analyse, &c.* of De L'Hôpital, a claim which merits no refutation. He was jealous of his own son, Daniel Bernoulli, who divided with him the prize of the academy of sciences in 1734, and was displeased that he turned Newtonian. The following anecdote is related by Condorcet, we know not on what authority, but we believe it: 'One day he proposed to his son Daniel, then a youth, a little problem to try his strength; the boy took it with him, solved it, and came back expecting some praise from his father. *You ought to have done it on the spot*—was all the observation made, and with a tone and gesture which his son remembered to the latest day of his life.' The only instance which has ever fallen within our reading, in which John Bernoulli showed himself free from petty feeling, was in his treatment of Euler, when the latter was his pupil at Basle. Observing his talent for mathematics he encouraged it, and gave him private lessons, in addition to those of the public course.

In thus displaying a character which appears to have no one amiable point about it, we depart from the common practice, which is never to admit, if by any softening it can be helped, that great intellect is not accompanied by greatness of mind in other respects. But it is not good to substitute falsehood (and coloured truth is falsehood) for truth, and it is not good for the living to know that literary or scientific reputation covers moral obliquity as soon as the grave has covered the body. D'Alembert, who, in the form of an *éloge*, has written an excellent account of the *mathematical* character of John Bernoulli, has dexterously evaded the difficulty. 'Bernoulli was only known to me by his works; I owe to them almost entirely the little progress I have made in geometry. Not having had any kind of acquaintance with him, I am ignorant of *the uninteresting details of his private life*.' Speaking of the celebrated dispute above related, he says, 'This altercation produced several pieces in which bitterness seems to have taken the place of emulation; but as one of the two must have been in the wrong, one of the two must have been in a passion.' He only forgets to state, what he himself knew as well as any body, that the 'one of the two' was the subject of the *éloge*, and his *protégé* for the time being.

In concluding what we mean to say on the two brothers, who stood at the head of their family, we may observe that it is clear that both one and the other had pushed their researches in the infinitesimal analysis far beyond the view of any other men of their time. Newton had abandoned the sciences, and Leibnitz, the other inventor, though he could decide between the right and the wrong, would not commit himself by an opinion on the solution of John Bernoulli only, but contented himself with stating that it seemed to him to be correct, but that he could not give it sufficient attention to speak positively. Of the two brothers, the elder was certainly the deeper and the more correct; the younger the quicker and the more elegant. The works of John Bernoulli, who lived much longer than his brother, contain an immense mass of discovery; but there is no particular on which we could dwell for the benefit of the general reader: the mathematician should consult the *éloge* of D'Alembert already alluded to.

NICOLAS BERNOULLI II. (to distinguish him from his cousin of the same name), the eldest son of John Bernoulli, was born January 27, 1695, at Groningen. He came to Basle with his father in 1705, and studied at the university, where he formed an intimate friendship with the afterwards celebrated Euler. In 1725 he was invited to Petersburg by the Empress Catherine, with his brother Daniel. But he had hardly time to do more than show that he had the talents of his family, when he died, July 26, 1726, at Petersburg. For his *éloge* see *Comm. Acad. Petrop.* v. ii., and for some memoirs of his, see vol. i. There are some of his memoirs in his father's works. (See the *Biographie Universelle*.)

DANIEL BERNOULLI, the second son of John, was born at Groningen, February 9, 1700. His father at first intended that he should apply himself to trade, but his objections to that course of life prevailed, and he was allowed to study medicine. He had received some instruction in mathematics from his father; we have already seen how. After passing some years in Italy, professedly employed upon medicine, but really upon mathematics, he returned to Basle. He could not at this time have been actually known as a mathematician by any decided effort of his own; but it was sufficient that he was a Bernoulli, for we are told that before he was twenty-four years old he had refused the presidency of the Academy of Sciences at Genoa. The following year he and his brother Nicolas were invited to St. Petersburg, as already mentioned. He appears not to have been well satisfied with the half savage court of Russia, and had made up his mind to quit it; but the empress, who wished him to remain, increased his salary, and gave him full liberty to retire on the half of it whenever he pleased. Thus obliged in honour to remain, he continued at St. Petersburg till 1733, when the state of his health compelled him to return to his country. Here he obtained, first a chair of medicine, and afterwards of natural philosophy, to which was subsequently added one of metaphysics.

He had published, in 1724, his first work, entitled *Exercitationes Mathematicæ*, in the title-page of which he styled himself 'son of John Bernoulli,' which title he always afterwards continued. His succeeding essays on mechanics were the first in which motion is decomposed into that of translation and rotation. He afterwards entered into the theory of compound oscillations, and is the first who applied mathematics to a species of considerations which have since become of the greatest utility and singularly extensive application. His *Hydrodynamique*, published in 1738, is the first work in which the motions of fluids are reduced to a question of mathematics. It is in one point like the subsequent work of Lagrange (the *Mécanique Analytique*): in that work the whole question is reduced to the results of one principle, which, in the work of Daniel Bernoulli, is called the *conservation of vis viva.*

In the theory of probabilities he introduced what is known by the name of the *moral probability*, which estimates a loss or gain, not absolutely, but by its proportion to the fortune of the person who stands the risk. His paper on inoculation, published in 1760, was one of the first in which a science whose practical utility is great, though difficult for the world at large to see, is applied to a question of statistics. On this subject he added to the methods which had begun to appear for the evasion of the difficulties arising from the necessary introduction of very large numbers into questions of combinations.

Daniel Bernoulli gained or divided the prize of the Academy of Sciences ten times; once (in 1734) in company with his father, on the question of the physical cause of the smallness of the planetary inclinations, by which, as before remarked, he excited jealousy in a quarter from whence admiration should have been most certain. His memoir has been considered the better of the two; and Condorcet observes, that he knew this, and showed that he knew it, which was not quite decorous. In 1740 he shared with Euler and Maclaurin the prize for a dissertation on the tides; and their three memoirs, which are all celebrated, contain all that was done on the theory of that subject between the writings of Newton and Laplace.

In 1748 he succeeded his father as member of the Academy of Sciences, in which he was succeeded by his brother John; so that for more than ninety years the foreign list of that body always contained a Bernoulli.

Daniel Bernoulli was found dead in his bed by his servant, March 17, 1782, having in his latter years been subject to asthma. He was never married, the only engagement of that sort which he ever contemplated having been broken off by him on the discovery that his intended wife was avaricious. In religion he was said by the clergy of his town to be a freethinker, a rumour which he never took any steps either to prove or disprove. But his conduct and talents had gained him so much respect among his fellow-citizens, that to take off the hat to Daniel Bernoulli was one of the first lessons inculcated upon the children of Basle.

The following anecdotes were related by himself, and he asserted that his self-love was more flattered by the incidents they contain than by all his prizes. When he was a young man on his travels, he talked with a stranger whose curiosity was excited by his conversation, and who asked his name. 'I am Daniel Bernoulli,' answered he. The stranger, thinking from his youthful looks that he could not be so celebrated a man, and wishing to answer the supposed hoax by one still better, replied, 'And I am Isaac Newton.' The other is as follows:—Koenig, then well known as a mathematician, was dining with him, and talking with some pride of a very difficult question, which it had taken him a long time to solve; Bernoulli went on attending to his guests, and before they rose from table furnished Koenig with a solution of his question. (See the *éloge* of Daniel Bernoulli by Condorcet.)

John Bernoulli II., third son of John Bernoulli I., born at Basle, May 18, 1710, died there July 17, 1790. He studied law and mathematics, and was successively professor of eloquence and of mathematics. Three of his memoirs gained the prize of the Academy of Sciences.

John Bernoulli III., his son, born at Basle, November 4, 1744, died at Berlin, July 13, 1807. At nineteen years of age he became a member of the academy of Berlin. He devoted himself particularly to astronomy, and his numerous observations are in the Berlin *Memoirs* and *Ephemerides*. He gave an edition of the algebra of Euler: his *Lettres sur différents sujets, &c.*, 1777—1779, contain much information on the state of observatories. There is a list of his works in the *Biographie Universelle*.

James Bernoulli II., second son of John Bernoulli II., born at Basle, October 17, 1759, was the deputy of his uncle Daniel in his professorship, when the latter became infirm, but did not succeed him, owing to candidates being then chosen by lot. He was afterwards professor of mathematics at Petersburg, and married a grand daughter of Euler. His memoirs in the Petersburg transactions had begun to show that he had the talent of his predecessors, but he died of apoplexy while bathing in the Neva, July 3, 1789. His *éloge* is in the *Nov. Act. Petropol.* vol. vii. (*Biog. Univ.*)

Nicolas Bernoulli I., nephew of the two first Bernoullis, was born at Basle, October 10, 1687, died there November 29, 1759. He was professor of mathematics and of logic at Padua, afterwards of law at Basle. There are some of his writings among those of John Bernoulli.

In concluding this article we shall remark that the two elder Bernoullis lived during the time while the mathematics were in a state of growth towards the power which was required for physical analysis. No two men contributed more to this work; and it is the integral calculus, as received from their hands, which became the instrument of their successors. They are of the age of Newton and Leibnitz: Daniel Bernoulli, on the other hand, is the contemporary of Clairaut, Euler, and D'Alembert; and in the hands of these four, the new calculus was applied to investigation of material phenomena. The circumstances of the times required such men, and there is no question that they must have appeared; but that they should all three have come from one family was not to be looked for, and furnishes an instance of consanguinity of talent of one kind, which must excite the curiosity even of those who care little for the subjects on which it was employed.

BERNSTORF, JOHANN HARTWIG ERNST, COUNT VON, a younger son of Joachim Engelke, Baron Von Bernstorf, chamberlain to the elector of Hanover, was born at Hanover, May 13, 1712. His education was conducted by the learned Keyssler, and in his company he travelled through the principal states of Europe. Having visited Denmark, he obtained from Christian VI., in 1732, the appointment of minister at the court of Augustus II., elector of Saxony and king of Poland. In 1737 he became envoy from Denmark to the Germanic diet at Ratisbon, and from 1744 to 1750 resided in France as Danish ambassador. In 1751 Frederic V. appointed him minister for foreign affairs, which office he filled till the ascendancy of Struensee in 1770, when he was dismissed, and retired to Hamburg, where he died, February 18, 1772. He was created a count in 1767 by Christian VII., whom he accompanied on his travels in 1768.

The principal event of his ministry was the accommodation of the differences between Denmark and Russia on the subject of Holstein-Gottorp. In 1762 war was threatened by Peter III. of Russia, but his death having averted the present danger, a treaty was negotiated by Bernstorf, which was finally concluded in 1773, by which Russia resigned all pretensions to Holstein, and received in exchange Oldenburg. It was by Bernstorf's advice that Frederic V. purchased the property of the Danish West India Company, and opened the trade in 1754. The claims of Denmark on the city of Hamburg were finally adjusted during his administration. In 1768 Denmark formally resigned her claim of suzeraineté over Hamburg, Hamburg remitting in return a part of the debt due to her from Denmark. The main object of his policy was the preservation of peace, in conjunction with which he directed all his efforts to the promotion of commerce and manufactures, and the encouragement of literature. He bears the character of an able and upright minister, and his exertions for the abolition of feudal slavery reflect the highest honour both on his wisdom and humanity. (A fuller account of his life and administration may be found in the third volume of *Materialien zur Statistike der Dänischen Staaten.*)

BERNSTORF, ANDREW PETER, COUNT VON, nephew of the preceding, was born at Gartow, in Lüneburg, August 28, 1735. He became minister for foreign affairs in Denmark, in 1773, which office he held during the greater part of the remainder of his life. He died July 21, 1797. (*Sammlung von Bildnissen verdienstvoller Dänen.*)

BE'ROE, in zoology, a genus of marine animals established by Müller, and placed by Lamarck under the second division of the first section of his first order of *Radiaria*, or radiated animals. Cuvier arranges the genus under his *Acalephæ*, which form his third class of zoophytes. It belongs to the *Ciliograda* of De Blainville, and to the *Ctenophoræ* of Eschscholtz. In Lepon's arrangement the *Beröidæ* form the first family of the first division of *Acalephans*. The species, which are gelatinous, transparent, and either oval or globular, float in the ocean, where they are widely diffused. Lamarck says that they are very phosphoric, and that they shine at night like lamps suspended in the sea, their brilliancy becoming vivid in proportion to the rapidity of their motions. Their breathing is carried on by means of cilia, which extend longitudinally and at equal distances along the surface from the mouth to the inferior opening. Fabricius observed minute crustaceans in the digestive organs, and that when one of these animals was broken to pieces those pieces still continued to live and swim about by the action of the cilia,

which was still continued. The beroës have a rotatory motion, and Bosc observed that they also had another, produced by an alternate contraction and dilatation.

MM. Audouin and Milne Edwards have given an interesting description of the organization of the globular beroë, (*Beroë Pileus*, Lam.: *Pleurobrachia* of Fleming; *Eucharis* of Péron and of Blainville), and Dr. Grant, in the *Transactions of the Zoological Society*, has given an able account of its nervous system, and of the structure of its cilia. Cuvier mentions it as being common in the north—where it is said to be one of the aliments of the whale (*Balæna*) —and in the channel on the French coast. Dr. Grant found this species on the coast off Staffa, and also on the coast of Sheppey, in the harbour of Sheerness, in which latter locality, says Dr. Grant, 'the boatmen, who seemed to be familiar with it under the name of the spawn of the sea-egg (*echinus*), which it somewhat resembles in its globular and ribbed form, assured me that often in hot and calm weather they swarm with the little medusæ in such numbers as to cover the surface of the water in all this part of the estuary of the Thames. The animal has a regular oval form, with its longest diameter from the mouth to the anus, about six lines, and its breadth about four lines. The general texture of the body is quite transparent and colourless.'

BERO'SUS (Βηρωσσός, that is, son of Ossus), priest of the temple of Belus at Babylon in the time of Ptolemy Philadelphus, is believed to have been born in the latter part of the reign of Alexander the Great. He wrote a 'History of the Chaldæans and the Actions of their Kings,' which has been long lost, though fragments of it are preserved in the works of several antient authors, particularly in those of Josephus and Eusebius. Fabricius, in his *Bibliotheca Græca*, edit. Hamb. 1728, vol. xiv. pp. 175-211, collected them under the title of *Fragmenta Berosi ex Scriptis ejus genuinis*. They were also edited by Richter, Leipzig, 1825, 8vo.

For this service Fabricius deserves the thanks of the learned world, as one Annius, or Nanni, a monk of Viterbo in Italy, who was born in 1437, and continued to live to the end of that century, counterfeited several books under old names, of which number were Manetho, *Berosus*, and Megasthenes, whom he called Metasthenes, a mistake into which he was led by Rufinus's Latin version of Josephus, and which gave the first occasion for the discovery of his cheat. These books he published with a comment upon them, and for some time they passed for the genuine works of the authors whose names they bore, but were presently exploded as fictions. An account of the editions of the false Berosus will be found in Meusel's *Bibliotheca Historica*, 8vo. Lips. 1782, vol. i. part i. p. 15; with an enumeration of the earlier authors by whom the forgery was discovered.

Pliny says that the genuine works of Berosus contained astronomical observations for 480 years (*Hist. Nat.* li. vii. c. 56): the computation of which is generally supposed to have begun from the æra of Nabonassar, which would bring them to the time of Berosus, about 270 years before the Christian æra.

After the Macedonians had made themselves masters of Babylon, Berosus is said to have learned from them the Greek language, and passing thence into Greece, first settled at Cos, the birth-place of Hippocrates (Vitruvius, li. ix. c. 7.), where he established a college or school for the study of astronomy and astrology. Afterwards he went from Cos to Athens, where he grew so famous for his predictions, that the Athenians were induced to place a statue of him in their gymnasium which had a gilded tongue. (Plin. *Hist. Nat.* li. vii. c. 37.)

(See Moréri, *Dictionnaire Historique*, edit. Amst. 1740, tom. ii. p. 238; *Biographie Universelle*, tom. iv. 8vo. Par. 1811, p. 335; Prideaux's *Connexion of the Hist. of the Old and New Test.* 8vo. Lond. 1725, vol. ii. pp. 803, iii. 97.)

Whether Berosus the astronomer be the same person with the historian has been a matter of discussion, arising probably out of the extravagant antiquity which some have given to the latter, making him as old as Moses. All the astronomers who preceded historical record have been made mythological personages: Justin Martyr even asserts Berosus to be the father of the Cumæan Sibyl. Vitruvius, who says, as above stated, that he opened a school of astrology at Cos, also explains at some length the opinions of Berosus on the moon's light, which are not worth citing; but Cleomedes (cited by Delambre, *Ast. Anc.* i. 228) describes him as maintaining that the moon's rotation on her axis is of the same length as her *synodical* revolution, from full moon to full moon; a curious opinion, and near the truth, as her rotation is in fact equal to her sidereal revolution, from a star to the star again. Vitruvius also attributes to Berosus the invention of the 'hemicyclium excavatum ex quadrato, ad enclimaque succisum.' This Delambre imagines to be (for the phrase does not admit of decisive interpretation) the same as the σκάφη, or hemispherical dial: that is, a concave hemisphere, with an opaque point or globule at the centre, by the shadow of which the place of the sun might be laid down in the hemisphere; but it must be observed that in the next words of Vitruvius, the σκάφη, as distinguished from the hemicyclium, is attributed to Aristarchus. Delambre, going upon this hypothesis, asserts the description of Vitruvius to be incorrect, unless 'quadratum' mean a parallelopiped. But it seems to us that the section of the hemispherical dial (a hemisphere hollowed in a cube and elevated for the latitude of the place, as we say of a globe) made by the plane of the meridian, is in so many words the instrument described by Vitruvius; and we submit, therefore, whether the 'hemicyclium' be not a meridian instrument, or meridian dial only, for taking the sun's altitude at noon.

The story of Pliny relative to the Chaldæan observations of 480 years is more modest than that of Simplicius [See ASTRONOMY, vol. ii. p. 531.] We refer to that article for the notion which we entertain of Chaldæan astronomy; it would not be worth while to discuss the probability of Pliny's testimony, unless some information could be gained as to what sort of observations they were.

(For authorities connected with the astronomy of Berosus, see Weidler, *Hist. Astron.*; and Blount, *Censura, &c.*)

BERO'SUS, in entomology, a genus of coleopterous insects of the family Hydrophilidæ (Leach). These beetles inhabit ponds, in which they may often be seen swimming in an inverted position. There are, however, other peculiarities in their mode of progression in the water which, being common to the tribe, will be noticed under the head HYDROPHILIDÆ. They most probably feed upon vegetable substances. The common colouring of the species is dusky yellow varied with markings of a black or dark metallic bronze hue; their form is nearly oval, and the principal generic characters are, eyes prominent, clypeus entire, antennæ nine (?) jointed, thorax narrower than the elytra.

BERRE, a small town in France, in the department of Bouches-du-Rhône, standing upon a salt lake (*étang*) to which it gives name, and which constitutes its chief claim to a separate notice.

The lake is near the sea, with which it communicates by the continuous channels of Martigues and la Tour-de-Bouc. The lake is sometimes regarded as consisting of four parts —the *étang de Berre* (in the more limited application of the name) in the centre—the *étang de St. Chamas* on the north-west—the *étang de Marthe* on the south—and the *étang de Vaine* on the east. These four parts constitute, however, but one lake, to which the general name of *Berre* is given. Sometimes it is called the *étang de Martigues*. It is about twelve or thirteen miles long from N.W. to S.E., and about ten in breadth at the widest part, according to the map of France by Brué (Paris, 1818), or rather larger according to the map published by the *Society for the Diffusion of Useful Knowledge*. Its circuit, which is very irregular, is differently stated; Malte Brun's estimate of fifteen French leagues (forty-one or forty-two miles) is probably not far from the truth.

An examination of the borders of this lake shows that it was formerly far more extensive. The writer in the *Encyclopédie Méthodique* thinks it is scarcely a twentieth part of what it once was. Its surface is tranquil, and it is navigable in its whole extent, and communicates, as already noticed, with the sea. It receives two small rivers, the Toutoubre and the Arc, of which the former has a course of about thirty miles, and the latter of between forty and fifty. The banks of the lake are, at least on the side of the town of Berre, very charming, and studded with villages; there are on them the two towns of Berre and St. Chamas. On the south-east side, the lake is bounded by a causeway of about three miles in length and 130 feet in breadth, which separates it from the étang de Beaumont or Marignan. This causeway is said to have been thrown up by Caius Marius in a single night, and in the presence of the enemy it still bears the name of Lou Caïou or Caï. If any faith is to be placed in this tradition, we must suppose the étang de Beaumont to have been included in the étang de Berre.

The waters of the étang de Berre deposit a greater quantity of salt than those of any other of the pools which line this part of the French coast, and it is of excellent quality. A great number of eels are taken every year; according to the *Encyclopédie Méthodique* 400 *quintaux*, or cwts., are annually salted, besides those that are eaten fresh; about forty *quintaux* of *boutargue*, a preparation nearly similar to caviare, are also made.

The country around the lake produces an abundance of olives; but the air is considered unhealthy; no doubt from the exhalation from such a surface of water.

The little town of Berre is upon an inlet on the north-east side of the lake. It was formerly one of the strongest fortresses in Provence. It was taken in 1591, after a long siege, by Charles Emanuel, Duke of Savoy: and though all the rest of Provence submitted to Henry IV. of France, that monarch was unable to expel the duke from this stronghold. It was evacuated by virtue of the treaty of Vervins in 1598. The fortifications have now gone to decay. The church was once celebrated for its relics, though even the Catholic writers who mention them cast strong suspicion on their genuineness. The population of Berre, according to the *Dictionnaire Universel de la France*, Paris, 1804, our latest authority, was 1600. This town is about ten miles S.W. of Aix, 43° 29′ N. lat., 5° 11′ E. long.

There is a small river, Berre, in the department of Aude: it falls into the étang de Sigean. In the department of Drôme there is another small stream of the same name, a feeder of the Rhône. (Malte Brun: Expilly; *Encyclopédie Méthodique*.)

BERRETINI. [See CORTONA, P. DA.]

BERRI or **BERRY**, a province of France, nearly corresponding to the present departments of Cher and Indre. While the old territorial divisions of France existed, Berri was bounded on the N. by the districts of Gâtinais, Orléanais Proper, and Blaisois, which were parts of the province of Orléanais: on the E. and S.E. by Nivernais and Bourbonnais: on the S. and S.W. by La Marche: and on the W. by Touraine. The shape of the province of Berri was very irregular: its greatest length, measured N.E. and S.W., from the neighbourhood of Cosne on the Loire to near Le Blanc, a town on the Creuse, was about 165 miles: the greatest breadth about 90. These dimensions, which are measured on the map published by the *Society for the Diffusion of Useful Knowledge*, exceed very much those which are given by Expilly in his *Dictionnaire des Gaules*, and are rather more than those given in the *Dictionnaire Universel de la France*. Berry lies between 46° 10′ and 47° 40′ N. lat., and between 1° and 3° E. long. nearly. It was usually considered as divided into Le Haut Berri (Upper Berri), between the Cher and the Loire, and Le Bas Berri (Lower Berri), S.W. of the Cher. Bourges, the capital, was in Upper Berri about 125 miles (measured in a straight line) due south of Paris, or 131 by the road through Fontainebleau, Montargis, and Gien.

The surface of the ground is little varied: there are no mountains, and few hills, except towards the banks of the Loire (which bounded the province on the N.E.), E. of Bourges. The chief rivers are the Loire: the Cher, a feeder of the Loire, with its tributaries, the Grande Saudre or Sauldre, the Petite Saudre, the Evre, and the Arnon; the Indre, another tributary of the Loire; and the Creuse, which flows into the Vienne, a third tributary of the Loire, within the basin of which river Berri may consequently be included. The banks of the rivers Loire, Cher, and Auron, are of great fertility, but of the rest of the province a considerable part is occupied by heaths, unwholesome marshes, or sandy tracts, which however are not entirely unproductive, but yield tolerable grain crops. The quantity of wood is considerable, above half as much again in proportion as the rest of France. The minerals are iron, ochre, and good building-stone.

Berri had only one diocese under the old regime, viz., the Archbishopric of Bourges: but the clergy were very numerous, and the number of collegiate churches, abbeys, and other religious houses considerable. Of course the Revolution has caused great changes in this respect. The diocese appears, however, to retain its former extent (comprehending the departments of Indre and Cher), and the diocesan his archiepiscopal rank. His suffragans are the Bishops of Clermont, Limoges, Le Puy, Tulle, and St. Flour.

The chief towns in Upper Berri, with their population in 1832, are as follows:—Bourges, the capital, on the rivers Auron and Evre, pop. 17,026 for the town, or 19,730 for the whole commune; Vierzon, on the Cher, pop. 4706; Dun-Le-Roi, on the Auron, pop. 3428 for the town, or 3874 for the whole commune; Sancerre, near the Loire, pop. 2270 for the town, or 3032 for the whole commune; Mehun, on the Evre, pop. 2277 for the town, or 3310 for the whole commune; Aubigni, on the Nere, a feeder of the Grande Saudre, pop. 2169; and Châteauneuf, on the Cher, pop. 1737 for the town, or 2019 for the whole commune. [See BOURGES, CHER, DEPARTMENT OF, and SANCERRE.] In Lower Berri are Châteauroux, on the Indre, pop. 10,851 for the town, or 11,587 for the whole commune; Issoudun, on the Theols, a branch of the Arnon, pop. 9544 for the town, or 11,664 for the whole commune: Le Blanc, on the Creuse, pop. 3617 for the town, or 4804 for the whole commune; La Châtre, on the Indre, pop. 3913 for the town, or 4343 for the whole commune: Valençay, on the Nahon, a small stream, a feeder of the Feuzon, which flows into the Cher, pop. 3095; Buzançais, on the Indre, pop. 2729 for the town, or 4416 for the whole commune: Levroux, on the Moulins, a branch of the Nahon just mentioned, pop. 2343 for the town, or 3058 for the whole commune; St. Aignan, on the Cher, pop. 2224 for the town, or 2772 for the whole commune: Selles, on the Cher, pop 1915 for the town, or 4121 for the whole commune: Vatan, between Châteauroux and Vierzon, pop. 1869 for the town, or 2761 for the whole commune: Déols or Bourg de Déols or Bourg Dieu, close to Châteauroux, pop. 1792 for the town, or 2113 for the whole commune; and Lignières, on the Arnon, pop. 1701 for the town, or 1987 for the whole commune. [See CHATEAUROUX, INDRE, DEPARTMENT OF, ISSOUDUN, LA CHATRE, and LE BLANC.] The present population of the district cannot be given exactly, as the census has for many years been taken by departments. Probably 500,000 is not far from the truth.

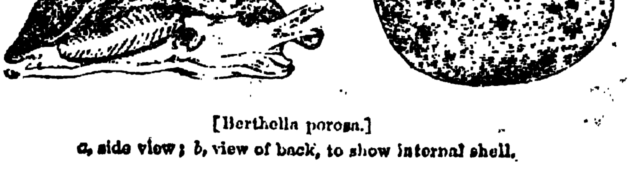
In a very remote period this province was inhabited by a people, the Bituriges, or as they are sometimes called, to distinguish them from another people of the same name, the Bituriges Cubi. These once held, if we may credit the testimony of Livy, the supreme dominion of the Celtic tribes in Gaul: and Ambigatus, their king (a contemporary of Tarquinius Priscus, king of Rome), sent out, under his nephews Bellovesus and Sigovesus, two numerous bodies of Gauls to attack, the one Italy and the other Germany. In the time of Cæsar, the Bituriges had lost their antient pre-eminence, and were under the protection of the Aedui. Their chief town was Avaricum, which Cæsar describes as nearly the finest city in Gaul, and very strong by situation. In the war which Cæsar, near the close of his command in Gaul, carried on against Vercingetorix the Arvernian, this country became the scene of contest, and Avaricum was taken, after an obstinate defence, by the Romans. According to the division of Gaul made by the Romans, Berri was included in Aquitania Prima. After the downfall of the Roman dominion, this country came successively into the hands of the Visigoths and Franks: and in the middle ages was under its own hereditary counts, who took their title from their capital, Bourges, a name derived from Bituriges, which designation had superseded that of Avaricum. In the early part of the tenth century the counts were, according to some writers, succeeded by the viscounts of Bourges, the last of whom, Eudes Arpin, sold the province to Philippe I., king of France. From this time, though often bestowed as an appanage upon various branches of the royal family, it never continued long alienated from the crown. In later times it has frequently given title to some of the French princes. The last who held it was the younger son of Charles X., ex-king of France. He was assassinated on the 13th February, 1820, by an individual named Louvel. The assassin, a political fanatic, had harboured for several years the design of assassinating either the duke or some other branch of the Bourbon family. He was tried on the 5th and 6th, and guillotined on the 7th of June of the same year. (Piganiol de la Force, *Nouvelle Description de la France*; Expilly, *Dictionnaire des Gaules, &c.*; *Dictionnaire Universel de la France*; Malte-Brun: *Letters from France*, by John M. Cobbett: *Encyclopédie Méthodique*.)

BERRY, in the acceptation of botanists, is a term confined to such soft and succulent fruits as have their seeds lying loosely among pulp. The gooseberry and the currant are therefore genuine berries; but plums, rose-heps, haws, &c., in which the seeds do not lie among pulp, are excluded from the definition, although they are all comprehended under the same name in common language.

BERRY POMEROY, a parish in the county of Devon, near the river Dart, in the hundred of Haytor, and about two miles E.N.E. from the borough of Totness. This parish includes the villages of Longcombe, Weston, Bourton, Afton, and Weekaborough. Bridgetown, adjoining Totness, is also in this parish. Berry, or more properly Bury, signifies a walled town; and the addition of Pomeroy is from the family which for many centuries held possession of the manor. This family was descended from Ralph de Pomerai, one of the followers of William the Conqueror, who gave him not only the manor of Berry, but many other lordships and estates in this county, some of which are specified by Camden. This person built a castle here, and made it the seat of a barony or honour. The family of the Pomeroys continued to reside here, and to hold the chief rank in this part of the country, until the reign of Edward VI., when the manor of Berry came, it is not agreed whether by forfeiture, cession, or sale, but Camden says by sale, from the hands of Sir Thomas Pomeroy to the Protector Somerset, with whose descendants it has ever since remained. In the parish church there are some handsome monuments of the Seymour family. The Duke of Somerset is impropriator of the great tithes, which belonged formerly to the priory of Merton in Surrey, and patron of the vicarage, which is returned of the annual value of 360*l.* by the Commission of Inquiry into the Ecclesiastical Revenues of England and Wales, published in 1835. Prince, the author of the *Worthies of Devon*, was vicar of Berry Pomeroy. The population of the parish was 1185 in the year 1831. The magnificent ruins of the castle erected by the Pomeroys are seated upon a rock which rises almost perpendicularly from a narrow valley through which winds a small stream of water. Being overhung by the branches of trees and shrubs, and incrusted with moss and mantled by ivy, the ruins form, in combination with the other features of the scene, one of the most striking and picturesque objects in the county. The great gate, with the walls of the south front, the north wing of the court or quadrangle, some apartments on the west side, and a few turrets, are all that now remain of this castle, which was dismantled during the civil wars in the time of Charles I.

(Gough's *Camden's Britannia*; Prince's *Worthies of Devon*; Grose's *Antiquities*; Polwhele's *History of Devon*; Maton's *Observations on the Western Counties*, &c.)

BERTHELLA (Zoology), a genus established by Blainville for a marine mollusk, from our coasts, which he acknowledges that he owes to the friendship of our countryman, Dr. Leach, and which Donovan had recorded as a species of *Bulla* (*B. plumula*). Blainville places it in the first family (*Subaplysiacea*) of his *Monopleurobranchiata*, and thus defines it. Body oval, sufficiently protuberant (*bombé*) above, and recurved below, when in a state of repose, so as completely to hide the head and the foot, which last is large and oval, but much less than the mantle. There is a kind of veil at the anterior border of the head, prolonged on each side into a sort of appendage cleft laterally. The two tentaculiform occipital auricules are cleft and striated within at their termination, and approach each other very nearly at their base, which is thinned out as it were. The eyes are sessile, placed upon the posterior root of the tentacula. There is but one pectiniform *branchia*, which is lateral, attached anteriorly, and, in great measure, free behind. The organs of generation terminate in one large tubercle, situated before the root of the branchia; the shell is internal, very delicate, and oval, with a summit hardly to be distinguished. The only recorded species is *Berthella porosa*.



[Berthella porosa.]

a, side view; *b*, view of back, to show internal shell.

BERTHIER, ALEXANDER, prince of Neufchâtel and Wagram, was born at Versailles, Nov. 20, 1753. Having obtained a commission in a regiment of dragoons, he served in the American revolutionary war, in which he acquired considerable reputation. During the French Revolution he became commandant of the national guard of Versailles, and in this situation he exerted himself to check the excesses of the populace. During the reign of terror he served under La Fayette and Luckner, and afterwards under Buonaparte, in his first Italian campaign. From this time he accompanied Napoleon in all his campaigns as chief of the staff; for which situation he was eminently fitted, though as a general his talents were not above mediocrity. In 1803 he married a Bavarian princess. In 1805 he was created a marshal of the empire, grand huntsman of the empire, and chief of the first cohort of the legion of honour. In 1806 he became Prince of Neufchâtel, and in 1809 Prince of Wagram. In 1810 he officiated as Napoleon's proxy in the marriage with Maria Louisa. On the restoration of Louis XVIII. he accepted the situation of captain of one of the companies of the gardes-du-corps. On the return of Napoleon he retired to Bamberg, where, on the 20th of March, 1815, he died by falling from a window, from which he was surveying the entrance of the Russian troops into the town. His death is enveloped in mystery, as it has been asserted by some that he was thrown from the window by force, though it does not appear that there is any sufficient authority for that supposition. (*Allgemeine Encyclopädie von* J. S. Ersch *und* J. G. Gruber; *Biographie Nouvelle des Contemporains.*)

BERTHOLLET, CLAUDE LOUIS, a distinguished chemical philosopher, was born at Talloire, near Annecy in Savoy, on the 9th of December, 1748. He commenced his studies at Chambéry, and completed them at the Collège des Provinces at Turin, an establishment in which many eminent persons have been educated. Having obtained a medical degree, he soon afterwards went to Paris, where he continued chiefly to reside during the remainder of a long life devoted to the acquisition of knowledge.

Not having any acquaintance in Paris, he introduced himself to M. Tronchin, a medical practitioner of eminence, and a native of Geneva. Through the friendship which arose from this introduction he was appointed physician to the Duke of Orleans: in this situation he studied chemistry with great assiduity and success, and soon made himself advantageously known by his 'Essays' on the subject.

In 1781 he was elected a member of the Academy of Sciences: and a few years afterwards the Duke of Orleans procured for him the situation of government commissary and superintendent of dyeing processes, which had been occupied by Macquer. To this appointment chemistry was indebted for his work on dyeing, which contains a better account both of the theory and practice of the art than any which had before made its appearance.

At a meeting of the Academy of Sciences in 1785, Berthollet announced his belief in the antiphlogistic doctrines recently propounded by Lavoisier, and he was the first French chemist of any celebrity who did so. On one subject he, indeed, differed from this illustrious chemist, for he did not admit oxygen to be the acidifying principle, and cited sulphuretted hydrogen as a compound possessing the properties of an acid; it is scarcely necessary to state that the justness of Berthollet's views is now universally admitted, confirmed as they have been by the discovery of other acids into the composition of which oxygen does not enter. In this year he completed the discovery of the composition of ammonia, by following out the previous experiments of Priestley; and he also published his first essay on dephlogisticated marine acid, now called chlorine, and proposed the use of it in the process of bleaching; an application which has been most extensively and beneficially adopted.

When the French Revolution broke out, and that country became involved in war, many of the requisites for carrying it on which had previously been imported could no longer be obtained through this channel. This was especially the case with saltpetre for the manufacture of gunpowder. In this emergency Berthollet visited almost every part of the country, for the purpose of pointing out the means of extracting and purifying this salt: he was also employed with some other men of science in teaching the processes of smelting iron and converting it into steel. In the year 1792, being appointed one of the commissioners of the Mint, he introduced considerable improvements into the processes employed in it. In 1794 he was made a member of the commission of agriculture and arts, and professor of chemistry at the Polytechnic and Normal Schools.

When the Institute was organized in 1795, he became an active member of it, and in the following year he was appointed by the Directory to proceed, in company with Monge, to Italy, in order to select works of science and art to be sent to the French capital. On this occasion he became acquainted with Bonaparte, which led to his joining the expedition to Egypt, and the subsequent formation of the Institute of Cairo, the memoirs of which body were printed in one volume at Paris in the year 1800.

It has been already stated that Berthollet was an early convert to the doctrines of Lavoisier, and he afterwards, in conjunction with him, Guyton de Morveau, and Fourcroy, planned and proposed a new and philosophical chemical nomenclature. This, even with all the errors and omissions necessarily attendant upon so new an attempt, has been of infinite service to chemical science, and reflects great and lasting honour upon its authors. He was the author of more than eighty memoirs, some of the earlier of which were inserted in the memoirs of the Academy; his later memoirs are generally printed in the *Annales de Chimie*, *Journal de Physique*, and the *Mémoires de Physique et de Chimie de la Société d'Arcueil*, so called from the place in which Berthollet lived, at whose house the sittings were held.

Some of the first memoirs which he published were on sulphurous acid, on the volatile alkali, and the decomposition of nitre; in these he adopted, and for some time strenuously defended, the phlogistic theory. In a paper on soaps, he showed that they are chemical compounds, in which the oil, by combining with the alkali, acts the part of an acid. In 1785, following and extending the experiments of Priestley, he proved that ammonia is a compound of three volumes of hydrogen gas, and one volume of azotic gas. About the same time he read a paper on the dephlogisticated marine acid, as it was called by Scheele its discoverer, on which occasion he renounced the doctrine of phlogiston; in his experiments on this supposed acid he found that water impregnated with it, when exposed to light, lost its green tint, gave out oxygen gas, and became common marine acid. This experiment seemed satisfactorily to prove, that dephlogisticated marine acid was composed of oxygen and muriatic, then called marine acid; Berthollet accordingly gave it the name of oxygenized muriatic acid, shortened by Kirwan into oxymuriatic acid. In this experiment, however, the agency of water was not taken into the account, and the incorrectness of Berthollet's opinion has been fully demonstrated by the experiments of Davy, Gay-Lussac, and Thenard: the name of chlorine is now given to this body, which, not having been yet decomposed, is regarded as an element. It has already been mentioned that to Berthollet we are indebted for the introduction of chlorine as a bleaching agent. In his essay on sulphuretted hydrogen, in 1778, he showed that this gas, though containing no oxygen, possessed acid properties; and in 1787, in an essay on prussic acid, he further proved the same fact, determining, by an analysis attended with great difficulties, that this acid contained no oxygen, and consequently exhibited an additional proof that oxygen was not, as Lavoisier had supposed, the acidifying principle.

Berthollet was also the discoverer of the ammoniuret of silver, generally called fulminating silver; and he also first obtained hydrate of potash in a state of purity, by dissolving it in alcohol. His experiments on the sulphurets and hydrosulphurets contributed to elucidate an obscure part of chemistry, but they were not complete, because the nature of the fixed alkalies, then unknown, is involved in the question.

In 1803 Berthollet published his work entitled *Essai de Statique Chimique.* In this he attempts to confute the opinion of Bergman, who considered chemical affinity as a certain determinate attraction which the atoms of different bodies exert towards each other, this attraction vary- in intensity between every two bodies, though stant between each pair. If affinity be an attraction, Berthollet considered it as evident that it never could occasion decomposition; he indeed admitted that decompositions did happen, but he accounted for them from other causes, and not from the superior affinity of one body over another: and he accounted for all decompositions which take place, when a third body is added to two others in combination, either by insolubility or by elasticity; thus, when sulphuric acid expels carbonic acid from combination with ammonia, it is not because the sulphuric acid and ammonia have greater affinity for each other than the ammonia and carbonic acid, but because the carbonic acid, on account of its elasticity, flies off. Although Berthollet's experiments, in some degree, modify the conclusions of Bergman, they by no means disprove them; and his opinions, though supported with great ingenuity, both of reasoning and experiment, have not made many converts.

Sir H. Davy, in his *Elements of Chemical Philosophy*, p. 117, has given an excellent synopsis of the peculiar views of Berthollet, and has clearly shown that his reasonings are unsupported, except by facts which are better explained on different principles. 'M. Berthollet,' he observes, 'to whom the first distinct views of the relations of the force of attraction to quantity are owing, has endeavoured to prove that these relations are universal, and that elective affinities cannot strictly be said to exist. He considers the powers of bodies to combine, as depending in all cases upon their relative attractions, and upon their acting masses, whatever these may be; and he conceives that in all cases of decomposition in which two bodies act upon a third, that third is divided between them in proportion to their relative affinities and their quantities of matter. Were this proposition strictly correct, it is evident that there could be scarcely any definite proportions: a salt crystallizing in a strong alkaline solution would be strongly alkaline; in a weak one, less alkaline; and in an acid solution, it would be acid; which does not seem to be the case. In combinations in which gaseous bodies are concerned, the particles of which have perfect freedom of motion, the proportions are unchangeable; and in all solid compounds, which have been accurately examined, and in which there is no chance of mechanical mixture, the same law seems to hold good. It is certainly possible to dissolve different bodies in fluid menstrua, in very various proportions, but the result may be a mixture of different solutions, rather than a combination. M. Berthollet brings forward glasses and alloys of metals as compounds, containing indefinite proportions: but it is not easy to prove that in these all the elements are chemically combined; and the points of fusion of alkali, glass, and certain metallic oxides, are so near each other, that transparent mixtures of them *may* be formed. It cannot but be supposed that the attractive power of matter is general, but in the formation of aggregates certain arrangements seem to be always uniform.

'M. Berthollet conceives that he has proved that a large quantity of a body having a weak affinity may separate a part of a second body from a small quantity of a third, for which it has a strong affinity; but, even granting this, it does not destroy the idea of definite proportions. Thus, in the fact noticed by Bergman, the decomposition of sulphate of potassa by nitric acid, one proportion of potassa may be separated from the acid, and the other proportion may combine with two proportions of acid; phenomena analogous to those of common double affinity.

'M. Berthollet states that a large quantity of potassa will separate a small quantity of sulphuric acid from sulphate of baryta; but he made his experiments in contact with the atmosphere, in which carbonic acid constantly floats; and carbonate of potassa and sulphate of baryta mutually decompose each other. Even allowing the correctness of his views, still he has not given a complete statement of facts. If potassa separates sulphuric acid from baryta, either there must exist an insoluble sulphate of baryta containing more baryta than the common sulphate, and which of course may contain two proportions of baryta: or baryta, sulphuric acid, and potassa must all be dissolved in the same fluid, which seems highly improbable. M. Berthollet regards baryta as separable from sulphuric acid by potassa; but he has not endeavoured to show in what form it appears after the process.

'M. Berthollet states that soda is capable of separating a certain quantity of potassa from sulphuric acid, but in his experiment water was present, as the soda must have been a hydrate: and he likewise used alcohol, and the phenomenon may be a phenomenon of double attraction. Potassa has a much stronger attraction for water than soda, and the soda may quit its water, and the potassa its sulphuric acid, and the effect may be assisted by the stronger attraction of hydrate of potassa for alcohol. When an alkali precipitates an earth from its solution in an acid, the earth, according to M. Berthollet's ideas, ought to fall down in combination with a portion of acid. But if a solution of potassa be poured into a sulphuric solution of magnesia, the precipitate produced, after being well washed, affords no indication of the presence of acid; and M. Pfaff has shown, by some very decisive experiments, that magnesia has no action upon neutral combinations of the alkalies and sulphuric acid: and likewise that the tartareous acid is entirely separated from lime, and the oxalic acid from oxide of lead by quantities of sulphuric acid merely sufficient to saturate the two bases; and these are distinct and simple instances of elective attraction. Again, when one metal precipitates another from an acid solution, the body that falls down is usually free both from acid and oxygen: thus zinc precipitates lead and tin, and iron, copper; and the whole of the oxygen and the acid is transferred from one metal to the other.

'M. Berthollet, in crystallizing sulphate of potassa from acid solutions, states that he obtained salts, of which the first portion contained 55·83 of acid in 100 parts, and another portion only 49·5; but it is far from improbable that these salts were both mixtures of the acidulous sulphate and the neutral sulphate of potash; and the idea is strengthened by the circumstance that he obtained neutral sulphate from the same solution, towards the end of the process; but even allowing the substances to have been principally simple binary combinations, and not mixtures, still the potassa and the acid may be regarded in them as indefinite proportions. The number representing potassa being considered as 90, and that representing sulphuric acid as 75, the first may be conceived to contain four of alkali and seven of acid, and the second, three of alkali and four of acid.

'In cases in which solutions of salts are formed in acid or alkaline menstrua, which are supposed incapable of decomposing them, the results must be considered as depending upon a new combination; and in the evaporation of the water or of the menstruum, and the crystallization of the remaining constituents, the proportions that have acted will determine the nature of the solids which are formed. There appears no difficulty in reconciling the doctrine of definite proportions with the influence of quantity; none of experiments of M. Berthollet can be considered as strictly contradictory to the doctrine, and some of the most important results of this sagacious chemist afford it confirmation.

'M. Berthollet supposes that the attraction of bodies for each other are inversely as the quantities that saturate. Thus, magnesia and ammonia take up more sulphuric acid than equal quantities of potassa, and therefore he concludes that magnesia and ammonia have a stronger attraction for acids than potassa; yet potassa instantly separates magnesia and ammonia from acids, and though the facility with which ammonia is expelled from a compound may be hypothetically accounted for, by assuming that the ease with which it takes the gaseous state assists its escape: yet magnesia is in an opposite case, and to account for chemical changes by supposing the effects of forms of matter which are about to appear, or powers not in actual existence, such as elasticity or cohesion, is merely the solution of one difficulty by the creation of another, and ammonia when solid or fluid should require a new force to render it elastic; and the cohesion in a compound can only be regarded as the exertion of the chemical attractions of its elements. The action betwen the constituents of a compound must be mutual; sulphuric acid, there is every reason to believe, has as much attraction for baryta as baryta for sulphuric acid; and baryta is the alkaline substance of which the largest quantity is required to saturate sulphuric acid; therefore, on M. Berthollet's view, it has the weakest affinity for that acid; but less sulphuric acid saturates this substance than any other earthy or alkaline body; therefore, according to M. Berthollet, sulphuric acid has a stronger affinity for baryta than for any other substance, which is *contradictory*.'

In a controversy which Berthollet had with Proust, he maintained an opinion which now seems too extraordinary ever to have been broached, that bodies are capable of combining in all proportions. The discussion was carried on with great vigour but equal courtesy on both sides, and though the ingenuity with which Berthollet sustained his views was greater than most persons could have brought to their support, it is now universally admitted that his ideas were totally inaccurate, while those of Proust have acquired fresh proof from the doctrine of definite proportions.

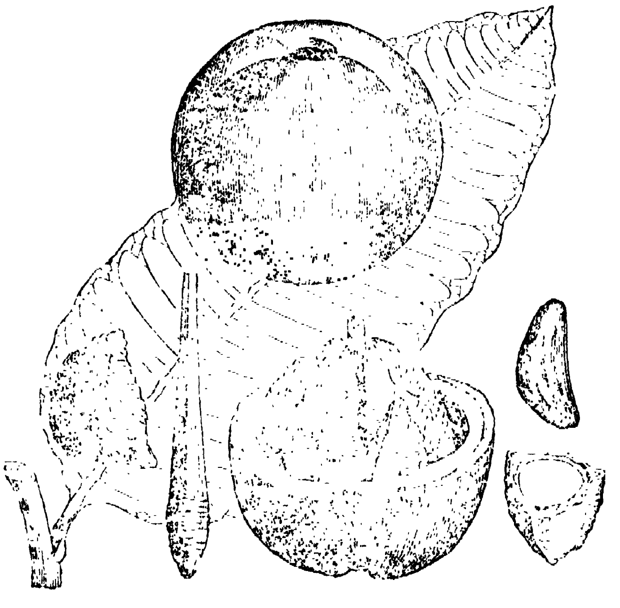
Several anecdotes, which prove the moral and personal courage of Berthollet, are on record, of which we shall select one only. During the Reign of Terror, a short time before the 9th Thermidor, when it was the system to raise up pretended plots to give pretexts for putting to death those who were obnoxious to Robespierre and his friends, a hasty notice was given, at a sitting of the Committee of Public Safety, that a conspiracy had just been discovered to destroy the soldiers, by poisoning the brandy which was going to be served out to them previous to an engagement. It was said that the sick in the hospitals who had tasted this brandy all perished in consequence of it. Immediate orders were issued to arrest those previously marked for execution. A quantity of the brandy was sent to Berthollet to be examined. He was informed, at the same time, that Robespierre wanted a conspiracy to be established, and all knew that opposition to his will was certain destruction. Having finished his analysis, Berthollet drew up his results in a report, which he accompanied with a written explanation of his views; and he there stated, in the plainest language, that nothing poisonous was mixed with the brandy, but that it had been diluted with water holding small particles of slate in suspension, an ingredient which filtration would remove. This report deranged the plans of the Committee of Public Safety. They sent for the author to convince him of the inaccuracy of his analysis, and to persuade him to alter its results. Finding that he remained unshaken in his opinion, Robespierre exclaimed, 'What, Sir! darest thou affirm that the muddy brandy is free from poison?' Berthollet immediately filtered a glass of it in his presence, and drank it off. 'Thou art daring, Sir, to drink that liquor,' exclaimed the ferocious president of the committee. 'I dared much more,' replied Berthollet, 'when I signed my name to that Report.' There can be no doubt that he would have paid the penalty of this undaunted honesty with his life, but that fortunately the Committee of Public Safety could not at that time dispense with his services.

Upon his return from Egypt, Berthollet was nominated a senator by the first consul; and afterwards received the distinction of grand officer of the Legion of Honour, grand cross of the order of Re-union, and, under the emperor he was created Count, after the restoration of the Bourbon he was created a peer of France. The advancement to these offices produced no change in the manners of Berthollet. Of this he gave a striking proof, by adopting, as his armorial bearing (at the time that others eagerly blazoned some exploit), the plain unadorned figure of his faithful and affectionate dog. He was no courtier before he received these honours, and he remained equally simple and unassuming, and not less devoted to science, after they were conferred.

The latter years of his life were embittered by the misconduct and suicide of his son, M. Amedée Berthollet, who had distinguished himself by his chemical researches. In 1822 he was attacked by a slight fever, which left behind it a number of boils: these were soon followed by a gangrenous ulcer of uncommon size. Under this he suffered for several months with surprising fortitude. He himself, as a physician, knew the extent of his danger, felt the inevitable progress of the malady, and calmly regarded the slow approach of death. At length, after a tedious period of suffering, in which his equanimity had never once been shaken, he died on the 6th of November, when he had nearly completed the 74th year of his age.

BERTHOLLETIA, a remarkable plant belonging to the natural order *Lecythideæ*. It is of large dimensions, and forms vast forests on the banks of the Oronoko. Its stem averages a hundred feet in height, and two feet in diameter, not branching till near the top, whence its boughs hang down in a graceful manner. Its leaves are undivided, arranged alternately upon the branches, about two feet long, and five or six inches wide, of a brilliant green. Its flowers are yellowish white, with a calyx having a deciduous border, divided into two pieces, a corolla of six unequal petals joined together at the base, and a very great number of white stamens joined into a thick fleshy ring. The fruit is figured and described by Humboldt as a spherical case, as big as a man's head, with four cells, in each of which are six or eight nuts; its shell is rugged and furrowed, and covered with a rind of a green colour. The nuts are irregularly triangular bodies, having a hard shell, which is very much wrinkled, and which is fixed to a central placenta by their lower end; their seed, as is well known, is a firm oily almond, of a pure white colour.

'The Portuguese of Para,' says Humboldt, 'have for a long time driven a great trade with the nuts of this tree, which the natives call *iuvia*, and the Spaniards *almendron*; they send cargoes to French Guiana, whence they are shipped for England and Lisbon. The kernels yield a large quantity of oil, well suited for lamps.' The same traveller describes himself and his companion, Bonpland, as having found these nuts a great luxury when they were following the course of the Oronoko. For three months they had lived upon bad chocolate, rice boiled in water, always without butter, and generally without salt, when they met with a store of Bertholletia nuts. It was in the course of June, and the Indians had just gathered in their harvest of them. The kernels were found delicious when fresh; but unfortunately they are apt to become rancid, on account of the great quantity of oil which they contain.



[Fruit and Seeds of Bertholletia excelsa.]

BERTRAND, SAINT, a small town in France, formerly capital of the district of Comminges in Gascogne. [See COMMINGES, and GARONNE (HAUTE), DEPARTMENT OF.]

BERVIE, or **INVER BERVIE**, a small parish and royal burgh in Kincardineshire, Scotland, 82½ miles from Edinburgh, on the coast road from Dundee to Aberdeen. The north side of the parish is bounded by the Bervie, a small stream, which joins the sea a little below the town, and forms a small harbour for fishing boats. The parish, which contains 2389 English acres, slopes from west to east, and is only about two miles long and one and a half broad. The boundaries of the burgh are fixed by the act to amend the representation of Scotland (2 and 3 Will. IV. c. 65). Bervie is the only royal burgh in this county: its charter was granted in 1342 by King David II., and renewed in 1595 by James VI. The burgh is irregularly built, and is governed by a provost, a dean of guild, a treasurer, and nine councillors, self-elected; since, by being included in schedule F of the Scotch Royal Burgh Reform Act, Bervie election is conducted as if that act had not passed.

Before the passing of the Scotch Reform Act, Bervie joined with Aberdeen, Montrose, Brechin, and Arbroath in sending a member to parliament, but now Forfar is added to this set of burghs instead of Aberdeen. The parish church was built in 1781. There is a good bridge over the Bervie. The inhabitants are supplied with water by means of pipes. The annual value of real property, as assessed in April, 1815, was, in the burgh, 143*l*., and in the parish, 2324*l*. (*Enumeration Abstract.*)

Fishing and smuggling were the chief occupations of the inhabitants up to 1750, when a sail-cloth manufacture was begun and successfully carried on for a time: the bleaching of cloth, and the manufacture of coloured thread for the London market, followed; and there is now a salmon-fishery on the beach. There is a weekly market, and two annual fairs are held in May and September.

The village of Gourdon, in the south-east corner of the parish, has a harbour, and a few small craft.

The clergyman's stipend is four chalders of victual*, 400 merks in money, and fifty pounds Scots for the communion-table. The manse is in the town, and the glebe contains about four acres and a half. The salary of the parish schoolmaster is 100 merks, and his whole income about 18*l*. or 20*l*. a year. The poor-rates arise from the interest of some money lent out, and from the weekly collections at the parish church door.

The population of the whole parish in 1831 was 1137; the burgh contained 757 inhabitants; the village of Gourdon 238, and 142 are country inhabitants. The number of males was 530: females, 607; males of twenty years of age, 386; occupiers employing labourers, 21; occupiers not employing labourers, 11; labourers, 72; persons employed in manufacture or in making manufacturing machinery, 70; retailers and handicraftsmen, 133: capitalists, bankers, professional and other educated men, 16: labourers employed in labour not agricultural, 47; male servants none; and female servants, 62.

(*Communications from Dundee and Aberdeen*; Sinclair's *Account of Scotland*, vols. 13, 17, 4, compared with Chambers's *Gazetteer*; Carlisle, *Top. Dict.*; Garden's *Map of Kincardineshire*; *Enumeration Abstract of Population Returns*; *Scotch Reform Bill*; *Scotch Royal Burgh Reform Act.*)

BERWICK-UPON-TWEED, a seaport and garrison town on the great north road from London to Edinburgh, situated on the northern bank of the river Tweed, about half a mile from its mouth, and distant 300 miles N. by W. ½W. nearly in a straight line from St. Paul's church, London, and 47 miles E. by S. ½ S. from Edinburgh; in 55° 46′ 21″ N. lat., and 1° 59′ 41″ W. long. The usual description of the place is 'the borough of Berwick-upon-Tweed,' but in some antient deeds it is called 'South Berwick,' doubtless to distinguish it from 'North Berwick,' on the Frith of Forth. The town and its liberties, which extend about three miles and a half along the sea-coast, and about the same distance towards the west, form an irregular figure, comprising an area of nearly eight square miles. They form one parish, bounded by the German Ocean on the east, the shire of Berwick in Scotland on the west and north, and a detached portion of the county palatine of Durham, called Islandshire, extending to the mid-stream of the river Tweed, on the south: the other half of the river belongs to the town. Berwick is not within any county, neither is it a town and county of itself, though it virtually forms a county; and it is somewhat difficult to determine to which part of Great Britain it belongs. Since the reign of Philip and Mary (if not from an earlier date) it has sent two members to the English House of Commons. Before the Reform Act the representatives were elected by the burgesses alone, whether resident or not. By that statute the populous township of Tweedmouth, in the parochial chapelry of the same name in Islandshire, and the village of Spittal, at the mouth of the river, also in the parochial chapelry of Tweedmouth, are added to the parliamentary borough.

Of the origin of Berwick nothing whatever is known, and for its early history there exist but few materials, and these are principally found in the Scottish Chartularies. It first appears authentically in the early part of the twelfth century, during the reign of King Alexander I., when it was part of his realm of Scotland, and the capital of the district called Lothian. About this time, but more particularly in the reigns of his successors, David I. and Malcolm IV., it became populous and wealthy, contained a magnificent castle, was the chief sea-port of Scotland, and abounded with churches, hospitals, and monastic buildings, and its importance as a place of trade is fully attested by its having been created one of the four royal burghs (boroughs) of Scotland. Torfæus has preserved an interesting story of Cnute, a merchant of Berwick, who, early in the reign of King Malcolm IV., had acquired from his riches the name of 'the Opulent.'

Under the treaty entered into with England for the ransom of William the Lion, who was taken prisoner near Alnwick in 1174, the castle of Berwick, with other fortresses in Scotland, was surrendered to the English king, but it was restored by Richard Cœur de Lion in 1189. In 1216 King John led an army to the north to chastise his disaffected barons and also the king of Scotland, who, it would seem, had espoused their cause. On this occasion the town and castle of Berwick were taken by storm, and the most horrible cruelties inflicted on the inhabitants by the English soldiers. After perpetrating similar outrages at Dunbar and Haddington, they returned to Berwick, and committed it to the flames, the English king commencing by setting fire to the house in which he had been lodged. During the reign of Alexander III., Berwick seems to have attained its highest pitch of improvement and prosperity as a commercial and trading port. A company of Flemings had settled there, who, as well as the native merchants, carried on an extensive trade in wool, hides, salmon, and other commodities; and such was their success, that a contemporary chronicler, who had been an eye-witness to its grandeur, denominated it a second Alexandria. During the competition between Baliol and Bruce for the Scottish throne, the English parliament sat at Berwick, and Edward I. finally gave judgment in favour of Baliol in the hall of the castle.

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* A chalder is 16 bolls, or about 80 bushels; victual here means corn.

In 1296 Edward commenced his unjustifiable and systematic attack upon the liberties of the Scottish nation by besieging the town of Berwick both by sea and land. It was bravely but unsuccessfully defended by a powerful garrison. Edward took both town and castle, put the garrison to the sword, and butchered the inhabitants without distinction of sex or age. Notwithstanding the capture of the town, the Flemish company nobly continued the fight for the preservation of their principal establishment, called the Red Hall, until the building was set on fire, when they all perished in the flames. Up to this date the burgh of Berwick, though now within the diocese of Durham, was within the archdeaconry of Lothian, in the diocese of St. Andrew's, and was under the rule of a mayor and four bailiffs, and subject to the jurisdiction of the justiciary of Lothian. There were, besides, a governor of the town and another of the castle, and a sheriff, whose authority extended also over the county of Berwick.

Edward I. gave the town a charter for its internal government, containing the privileges and immunities usually inserted in similar grants to English boroughs, but without altering materially, if at all, its antient constitution; and he confirmed to it the enjoyment of the Scottish laws as they existed in the time of Alexander III.

In September, 1297, the Scots, under Wallace, gained a signal victory over their invaders at Stirling bridge. The English army retreated to Berwick, but soon deserted it, though the garrison retained possession of the castle. In the following spring, on the approach of a powerful army from England, the Scots evacuated the town, after which Berwick remained in the possession of the English for twenty years, and during that period large sums of money were expended in fortifying both it and the castle, and a numerous garrison was employed in its defence.

In 1318 it fell into the hands of the Scots, through the treachery of Peter de Spalding, an English soldier, who enabled a body of troops, cautiously assembled, to scale the walls secretly by night, and to become masters of the town. The English fled to the castle for safety, but the Scottish army, which soon afterwards arrived, compelled them to capitulate. The acquisition was of immense importance to Bruce, then king of Scotland: it was the key to the sister kingdom. While in possession of the English it had contributed largely by its customs and other duties to the public treasury, for it was one of the richest commercial towns then in England. Bruce confirmed by charter its antient privileges; the walls and other fortifications were strengthened and extended; the valuable services of John Crabbe, a foreign mercenary, who was famous for his skill as an engineer, were secured for its defence, and the efforts of the English army, who attempted to retake it in the following year, were unavailing. It thus remained in the possession of the Scots until the fatal battle of Halidon Hill, an eminence within the liberties of the borough, almost close to the Scottish border, and distant about two miles north by west from the town. After this battle, which was fought in July, 1333, Berwick again fell under the dominion of the English, and so continued until the month of November, 1355, when it was surprised in the night by the Scots, under the command of the earls of Angus and March, assisted by French auxiliaries. The inhabitants fled to the castle, leaving the town to pillage; and Fordun, the Scottish historian, refers with more than ordinary exultation to 'the gold and silver and infinite riches' which became the prey of his countrymen. In following January Edward III. invested the town with a powerful army, and the Scots, being unable to retain it, agreed to articles of capitulation, and were suffered to depart with all their effects, almost every individual soldier, according to the same authority, being made wealthy with the booty he had obtained.

In 1378 the castle of Berwick was taken by a small band of Scottish adventurers, who slew the constable, Sir Robert de Boynton, and kept possession of it upwards of a week: it was then retaken by the Earl of Northumberland, at the head of 10,000 men, and here his eldest son, the celebrated Hotspur, afterwards governor of the place, commenced his military career.

In 1384, during a truce, the Scots repossessed themselves by night of the castle, which had been committed by the English king to the custody of the Earl of Northumberland, and burnt the town; but the offer of a sum of money soon induced the enemy to abandon their conquest. After the accession of Henry IV. the earl, believing that Richard II. was still alive, adhered to his fortunes, and in 1405 surrendered Berwick to the Scots, who pillaged and once more burnt it. The English king, with an army of 37,000 fighting men (according to Walsingham), besieged the castle, the earl and his adherents having previously deserted the town and fled to Scotland. The garrison hesitated to surrender on being summoned, but a single shot from a large piece of ordnance threw down one of the towers, which so terrified the defenders that they instantly gave up the castle, and all of them were either beheaded or committed to prison. In 1416 the Scots attempted the recovery of Berwick, but without success. Henry VI., after his defeat by Edward IV. at Towton in 1461, fled to Scotland, and, with the consent of his council, surrendered Berwick to the Scots, who continued masters of it and the castle for twenty-one years. In July, 1482, the town again surrendered to the English, but the castle held out until the 24th of August following, when, through the intrigues of the Duke of Albany, the brother of James III., both town and castle were finally surrendered to Edward IV., and were never afterwards recovered by the sister kingdom.

After the conquest of Berwick in 1296, and of the other southern parts of Scotland, Edward I., whose example was followed by his successors, continued to that kingdom its antient laws and officers of state, though the latter were generally selected from his own subjects. In process of time, as their Scottish acquisitions fell one by one from the hands of the English, the great officers of state, who at first were designated as of the kingdom of Scotland at large, became known as superintending only those portions of the realm which were still under subjection to England, and when Berwick only remained of these conquests, the officers were described of that borough alone. Accordingly, we find the chancellor and chamberlain, or treasurer, first called 'the kingdom of Scotland;' next of 'Berwickshire, Jedburgh, Selkirk,' &c.; and, lastly, their only title was 'chancellor and chamberlain of Berwick.' These two offices were retained from the reign of Edward I. to the accession of James VI. of Scotland to the English throne. To the chancellor, who had his chancery, master of the rolls, clerks, &c., and a Doomsday Book at Berwick, was committed the duty of preparing and sealing all grants and other official documents emanating from the crown: the chamberlain had the management of the royal revenue, besides a judicial power in his itinera, or circuits, as the justiciary of Lothian also had. There were also an escheator, an exchequer, an exchange, and a mint at Berwick the last in existence during the reign of William the Lion), and the usual officers found in other ports of England and Scotland, such as customers, collectors of customs, controllers, troners of wool, clerks of the cocket, and the like. The military officers (the governors of the town and castle, the marshal, &c.) were likewise continued; and, in a word, the whole civil, judicial, and military establishment of the borough resembled that of a kingdom. The first Edward, as already stated, confirmed the antient liberties and customs of the borough, and in this he was followed by most of his successors, ending with Queen Elizabeth, who granted confirmatory charters; and various acts of parliament are scattered over the English statute book, the most important of which is one in the reign of Edward IV. (A.D. 1482, in the twenty-second year of his reign), having the same end in view. The mayor and four bailiffs were the only officers of the corporation named in the charters, but the general words are ample enough to comprehend and legalise the other corporate officers, of whom there were many. Accordingly, the alderman, dean, and feeryngmen, or affeeringmen, who constituted a court similar to that of a common council, are mentioned in the 'Statuta Gildæ' of Berwick, the first of which were enacted about the middle of the 13th century, and also in the guild books of the reign of Henry VIII. In the guilds or meetings of the corporate body all measures for the internal regulation of the borough were decided upon, and many of their ordinances, affecting the inhabitants who were not burgesses, down to a much later date than the period which has passed under review, savoured of the spirit of the age, being alike impolitic and unjust.

From the reign of Edward I. to that of Elizabeth the principal export trade continued to be wool, wool fells, hides, and salmon, and though perhaps Berwick was never afterwards so wealthy as in the days of the third Alexander, yet her merchants were long distinguished for their riches and the extent of their traffic, and long enjoyed a species of monopoly in their exports to Calais and other foreign ports, and to the city of Bruges, &c. The importance of the place, however, may be estimated from the single fact that the burgesses had a lease of the town from Edward I. in the year 1307, for which they paid the annual rent of 500 marcs at the exchequer of Berwick. Of the antient revenues of the corporate body little is known. So early as the reign of Alexander III. they had a prison called the Berfreyt, and at a subsequent date they were owners of a few acres of ground in the Snook, near the sea-coast. In the time of Queen Elizabeth they derived a small yearly income from tolls on merchandise at the quay, and probably from other sources; and they enjoyed with the garrison and other inhabitants the right of depasturing cattle on part of the crown lands.

But it is to the liberality of James VI. of Scotland that they are indebted for nearly the whole of their present wealth. In the second year of his reign over England James granted them by charter, confirmed by act of parliament, the seignory of the town and all the lands within the borough, except certain estates which he had previously given to Sir George Hume, and the burgage tenements within the walls which belonged to private individuals. This territory measures about 3077 acres, being two-thirds of the whole land within the bounds, and at present yields an annual revenue, including their other sources of income, of about 10,000*l.* It is by this charter that the town and liberties are now governed. To attempt even an abridgment of it would far exceed our limits: the local officers are substantially the same as in the former charters, with the addition of a recorder, a coroner, and four serjeants-at-mace for executing the process of the courts; all the corporation officers are elected by the burgesses in guild, not by the crown. It empowers the justices of the peace, consisting of the mayor for the time being, with those who have previously served that office, and the recorder, to try all offences committed within the borough and liberties, and to pass and carry into execution sentence of death and other punishments, as fully as can be done by judges of assize in England, who have no jurisdiction here. It also gives ample power to the mayor, recorder, and bailiffs to hold a civil court of record, for the recovery of lands, tenements, debts, trespasses, &c., where the causes of action arise within the jurisdiction. In all the courts, civil and criminal, the proceedings are the same as in the English courts, the laws of Scotland having now no force here. The charter also grants two weekly markets, on Wednesday and Saturday, the former of which is now almost entirely discontinued, and an annual fair from the feast of the Invention of the Holy Cross (3rd May) to the feast of the nativity of St. John the Baptist (24th June), but in modern times no actual fair is held except on the Friday in Trinity week. Ecclesiastically considered, Berwick is now in the deanery of Bamborough and diocese of Durham, and is held to be within the custom of York as to the distribution of intestates' effects. The church, which is dedicated to the Holy Trinity, is in the patronage of the dean and chapter of Durham, who lease the tithes to the corporation. The living is a vicarage of the annual value of 289*l.* according to the Ecclesiastical Report of 1835. There is also a week-day lectureship, founded in 1625, by Mr. Fishborne, in the gift of the Mercers' Company in London, but no other church or chapel connected with the church of England. There are ten other places of public worship, viz. a Catholic chapel, two meeting-houses connected with the Kirk of Scotland, two with the Associate Synod of Scotland, two with the Relief, one Baptist chapel, and two belonging to the Methodists.

Berwick still remains a walled town, but the fortifications do not inclose so large a space as they did in antient times. The modern ramparts, which are, generally speaking, in good repair, do not include the suburbs of Castle-gate and the Greens, but the ruins of the old wall which surrounded them, and extended further towards the east also, yet remain; and one of its towers, called the Bell Tower, is still almost entire. It seems doubtful whether Berwick was surrounded with a *stone* wall prior to its conquest by the first Edward. The more correct opinion probably is that it was then merely defended by a ditch and wooden palisades. The present walls were built in the reign of Queen Elizabeth. Excluding the suburbs, the circumference is a mile and three quarters, but including them, it extends upwards of two miles and a half. The old works consisted probably of a ditch, a rampart, and circular or square towers, or both, at intervals. The existing defences consist of a rampart of earth substantially reveted, faced with stone. Towards the river the line of works is nearly straight, but to the north and east five bastions break the line of the curtains. There are no outworks, with the exception of the old castle, now completely in ruins, overlooking the Tweed, and an earthen battery guarding the landing-place below the Magdalen Fields. Around four sides of the irregular pentagon of the walls is a ditch mostly dry, but there is no glacis, nor is there any covert-way at the counterscarp. The first bastion to the north is called Megs Mount, and, like three of the others, it has a cavalier of earth, which enables the guns to command the irregularities of the ground up the Tweed, on the Scotch side of the river. It is a demi-bastion, having a double flank on the right, which defends the 'Scotch Gate,' situated between it and Cumberland Bastion, with double flanks. Brass Mount Bastion is the next, under the cavalier of which is a powder-magazine. This, with Windmill Mount, has double flanks. Between Windmill Mount and King's Bastion (a demi-bastion without a cavalier, on which is the flag-staff), is a powder-magazine, with a bomb-proof roof. A four and a six gun battery near the governor's house defend the entrance to the harbour. Finally, the saluting battery of twenty two guns commands the English side of the Tweed. There are five gates, the English Gate at the end of the bridge (now removed), the Scotch Gate on the north, the Cowport, leading to the Magdalen Fields, the Shore Gate, leading to the quay, and the Pier Gate.

The remains of the castle do not enable us to give any particular description of it. In the reign of Elizabeth it was in complete repair, but in that of Charles I. it was in ruins; an eye-witness at the latter period describes it as 'in manner circular, but dilapidated,' as having had 'mounts, rampiers and flankers, well replenished with great ordnance, and fair houses therein, the walls and gates made beautiful with pictures of stone (statues), the work curious and delicate.'

The town is in general well built, and the principal streets wide and airy. The entrance from the south, which was lately narrow and incommodious, is now being improved. The parish church is a commodious and elegant building, calculated to accommodate from 1000 to 1500 people. It was built between the years 1648 and 1652, and, like some others erected in the days of the Puritans, has no spire or tower. The town or guild-hall, which belongs to the burgesses, and in which are held their public meetings and the courts of justice, is a handsome structure, with a stately spire 150 feet high, in which is a peal of eight bells. It was erected between 1750 and 1760. The latitude and longitude given at the commencement of this article mark the exact position of this spire, according to the Trigonometrical Survey. Above the public rooms is the only prison of the place. Below is the market-place for the sale of butcher's meat, poultry, eggs, butter, &c. There is no house of correction. The barracks, which were built in 1719, form a neat quadrangle, and afford good accommodation for 600 or 700 infantry. The governor's house is now appended to them for officers' barracks. The bridge over the Tweed, consisting of fifteen arches, is 924 feet long from the bridge gate to the landing abutment on the Tweedmouth side, but it is only seventeen feet wide. It was built in the reigns of James I. and Charles I., and is the property of the Crown. An annual allowance is paid by the treasury to the corporation for keeping it in repair. The Tweed is a navigable river as high as the bridge, and the tide flows about seven miles farther, but the entrance of the river is narrowed by sand-banks. To remedy this inconvenience, there is a stone pier, built on the projecting rocks at the north entrance of the Tweed, under an act of parliament passed 18th June, 1808: it is nearly half a mile in length, and terminated by a light-house. The ordinary spring-tides rise fifteen feet. The quays and warehouses are sufficiently extensive and commodious, and there is a patent slip for the repair of vessels. There are no docks, the want of which is much felt. A life-boat has been lately procured for the port. With the single exception of an iron-foundry, there is not a manufacturing establishment that deserves the name within many miles of Berwick. A railway was proposed between Kelso and this town, for which an act of parliament was obtained, and ample subscription lists filled, and yet it was abandoned. Still, few towns possess more local advantages for manufactures. In the midst of a wool country, from which a large quantity is annually drawn to the manufacturing districts of Yorkshire, possessing many excellent falls of water, with inexhaustible mines of coal in the immediate neighbourhood, a port from which produce of all kinds might be shipped and received with the greatest facility, there is not one manufactory established within forty miles of Berwick, by which any of these advantages are enjoyed by the capitalist, or by the people whom he might employ.

An iron foundry, established something less than forty years ago, employs upwards of sixty hands. It supplies not only the district round about with steam engine and thrashing mill castings, and others in general use, but sends considerable quantities of hollow ware and a variety of other castings to London, and to the British Colonies in North America. Its manufacture includes almost every article of cast-iron. The gas-light apparatus for this town, Perth, and several other places, was made here, and last year the proprietors erected the works at Galashiels and at Jedburgh, which are just completed.

Until within the last twenty years, a highly lucrative trade was carried on in the export of pork and eggs to London, the annual value of the latter article alone being at least 30,000*l.*, and of pork about 10,000*l.* Since the peace this trade has totally ceased, and the metropolis is now supplied by Ireland and the Continent. Berwick is now a bonding port. The existing trade of the town is principally confined to the exporting of salmon and corn, and of coals to London, and various ports in Scotland, and to foreign countries; and latterly considerable quantities of ale from Ednam brewery, and of whisky from the distilleries of Gunsgreen and Kelso, have been shipped to London. There are regular traders between Berwick, London, Kingston-upon-Hull, Newcastle upon-Tyne, and Leith. Formerly, two vessels were engaged in the whale-fishery. Now, only one is employed, the other having been lost at sea a few years ago. In late years there has been a considerable emigration to America. The following tables show the total tonnage of the port, and the number of ships for the last nine years, and the quantities of corn, &c. exported during the last fourteen years.

1. TONNAGE.

Year.	Inwards coasting.	Inwards foreign.	Outwards coasting.	Outwards foreign.	Ships.
1826	27,190	4,895	39,545	„	505
1827	22,550	4,182	39,357	„	480
1828	23,868	3,104	42,455	„	471
1829	21,837	4,534	37,474	217	543
1830	21,348	4,497	45,703	700	487
1831	26,862	4,823	50,329	1,506	553
1832	27,250	6,729	52,005	2,719	544
1833	19,675	6,067	33,323	5,416	529
1834	20,167	8,601	34,671	6,044	597

2. EXPORTS.—Grain shipped, the year commencing 1st September.

Year.	Wheat. qrs.	Barley. qrs.	Oats. qrs.	Rye. qrs.	Beans. qrs.	Peas. qrs.	Bags.
1820	27,729	6,867	28,662	58	999	25	36,619
1821	59,274	11,497	48,630	160	1,553	90	29,009
1822	64,866	4,215	34,624	270	1,803	475	31,561
1823	34,417	7,320	42,456	402	814	5	31,150
1824	58,729	31,082	45,887	391	1,615	48½	39,062
1825	32,976	33,040	27,641	1,118	1,182	208	30,676
1826	34,219	22,890	9,268	434	533	327	28,256
1827	25,777	27,900	15,113	556	1,461	423	28,110
1828	19,175	42,647	45,012	1,099	934	438	29,021
1829	22,271	23,859	28,280	625	1,383	551	27,798
1830	16,396	32,699	32,947	329	2,199	234	25,160
1831	28,248	23,962	11,713	417	1,670	4	29,170
1832	20,486	32,101	22,978	587	2,862	404	29,511
1833	19,730	32,461	33,571	596	4,311	115	24,631

The item 'bags,' each containing 20 stone, consists of flour, oatmeal, and groats, and manufactured barley. The imports from foreign countries consist principally of timber and a little iron, hemp, and flax, and bones for manure.

The salmon fisheries in the Tweed have for many centuries been very productive. Both in England and Scotland, fishings in the sea and in navigable streams originally belonged to the crown: and accordingly we find, in early times, that those on the south side of the river were possessed by the bishop of Durham, who had all the jura regalia within his palatinate, while those on the north were the property of the kings of Scotland. The earliest document we find relating to the bishop's fishings is a grant in Anglo-Saxon from Ranulph Flambard (who held the see from A.D. 1099 until 1128) to St. Cuthbert and his monks, of the fishery of Haliwarestelle, at the mouth of the river, near Spittal. It is still called Hallowstell. In the Scottish chartularies numerous grants occur from the crown to monasteries and friaries of the royal fishings on the Berwick side of the river, many of which are still called by their antient names, and the high rents which were obtained by the religious houses from the occupiers evince the importance and value of the traffic. Until about the year 1730 the salmon sent from Berwick were either salted and dried, or boiled and pickled with salt and vinegar, except salmon-trouts, which were occasionally kept alive in wells or tanks in the ship's hold. The exports were principally to London, but considerable quantities of salted salmon were also sent to the Mediterranean. At present the whole, except what are required for home consumption, are sent fresh to London packed in ice. These fisheries have fallen fully four fifths in value within the last twenty years. Before that period the annual rental reached 20,000*l.*; now it does not exceed 4000*l.*, and at that reduced rate the tenants are losers. The greatest quantity shipped in one year during the last forty years was 13,189 boxes, each weighing on an average nine stones: the smallest number was 3323 boxes. For many years past the number has been from 3000 to 4000 boxes only. It is perhaps difficult to account for so immense a falling off in the produce: one of the causes, if not the principal one, is said to be the great destruction of fish during the breeding season, and of the young fry in the higher parts of the river and its tributary streams. A police is employed for the protection of the river, under the authority of the Tweed Fishery Act, passed 29th May, 1830, and a tax of 2*s.* per pound upon the rental of the fisheries is levied for its maintenance. This fund, however, is now so small, from the depreciation in the value of the waters, that the force kept up is insufficient to prevent poaching and theft.

Berwick is very amply supplied with water of good and wholesome quality, at a very trifling expense. The corporation are owners of the water-works and pipes. The public reservoirs are open to all without cost, and any inhabitant is allowed to have an unlimited supply conveyed by a branch pipe into his own dwelling-house, at the annual charge of 5*s.* Fuel is also abundant and cheap, there being several collieries on the south side of the river within from two to four miles of the town. The price of coals per ton, including carriage to the door, is usually 7*s.* 6*d.*, but the present price (1835) is 5*s.*, which does not remunerate the coal-owner. The town is also excellently lighted with coal-gas. The coals for the retorts are brought from Newcastle-upon-Tyne, those in the neighbourhood not being pure enough for the manufactory. The extra price of carriage however, is compensated by the coke produced, for which there is a plentiful demand, so that the gas-light company are enabled to charge moderate prices, and to secure an ample remuneration for their capital.

The population of the parish of Berwick, which has not increased much within the last thirty years, was, according to the census of 1811, 7746; of 1821, 8723; and of 1831, 8920. The following is the return made under the last Census Act:—

Inhabited hoases		1190
Families		2118
Houses building		7
„ uninhabited		69
Families employed in agriculture		111
„ trade		885
„ no trade		1122
Males	3937	8920
Females	4983	
Males 20 years of age		1897
Occupiers of land employing labourers		16
„ not employing labourers		53
Labourers employed in agriculture		86
Employed in manufacture		44
retail trade, or handicraft		952
Capitalists, bankers, &c.		176
Labourers, not agricultural		311
Retired tradesmen, and persons disabled		244
Male servants		15
under 20 years of age		5
Female servants		412

The total number of burgesses is about 1000, of whom about 460 are resident: 427 of these were registered prior to the last general election, and 257 other electors were also registered. The population of the townships of Tweedmouth and Spittal is, according to the last census, 4060: of the whole parochial chapelry of Tweedmouth, 1971. The population of the whole parliamentary borough was therefore 12,920 in 1831.

Education.—For the education of children of burgesses there are six schoolmasters, paid out of the corporate purse. The average number of pupils is about 300. The branches of education taught are, reading, English grammar, writing, and arithmetic. The salaries of the teachers amount altogether to 380*l.* per annum. The burgesses have also the patronage of a free grammar-school, in which Latin and Greek are taught, and here, as well as in the schools more peculiarly their own, their families are educated free from any expense to themselves, except a small sum for firing. The grammar-school is endowed. The number of pupils varies from twenty to thirty, of whom about ten are burgesses' sons. The annual income arising from lands and tithes is about 158*l.*, and the schoolmaster's salary, with repairs, taxes, &c., is about 100*l.* per annum. The surplus is appropriated towards the liquidation of a debt incurred in rebuilding the school and repairing the master's dwelling-house. There is also a charity-school, which was founded in 1725, for educating and clothing poor children above eight years of age, who must be inhabitants of Berwick, and attend the Church of England. The scholars are taught reading, writing, and accounts, and are allowed to remain five years in the school. The National system has recently been adopted in this school. Formerly a portion of girls were instructed, but now boys only are admitted. The number is usually forty. The master's salary, which is 50*l.*, and the expense of clothing, books, stationery, repairs, and other incidents, amounts to 160*l.* a year. There is also a Lancasterian school, supported by voluntary contributions, in which 120 poor girls and boys are taught reading, writing, and arithmetic at the annual expense of about 36*l.* There is also a school of industry, for educating poor girls, and qualifying them for service. Both are supported by voluntary contributions. The children are instructed in reading, writing, sewing, and household work. The number is generally 115, and the annual cost 75*l.*, towards which each child contributes one penny per week. Besides these, and a school in the parish workhouse hereafter noticed, there are various private schools, in which about 600 pupils are educated, and several Sunday schools. An infant school was lately established, and exertions are now being made for continuing and enlarging it. There is no mechanics' institute in Berwick. One was attempted a few years ago, but it failed. There is, however, an institution of a novel description, which promises to be of much utility. This is the Berwickshire Naturalists' Club, a society which was commenced three years ago. Its object is to examine with care and accuracy the natural productions of the district, embracing Berwickshire and the northern division of Durham. Any person of respectable character is admitted to this society, on condition of making a small annual contribution to defray the expense of printing an account of its proceedings. Its members now amount to upwards of thirty, and its utility begins to be recognised.

1. *Sunday Schools.*

Year.	Number taught		Total.	Number who attended no other School.		Total, attending no other School.
	Boys.	Girls.		Who had finished other branches of education.	Who never attended any other School.	
1822	491	580	1071	99	29	128
1835	415	497	912		30	

2. *Other Schools.*

Year.	Number of Children educated.				Educated solely in Sunday Schools.	Total.
	Gratuitously.		In other Schools.			
	Boys.	Girls.	Boys.	Girls.		
1822	300	345	500	528	29	1702
1835	385	315	344	253	30	1327

3. *Population.*

Year.	Under 5 years of age.		From 5 to 10.		From 10 to 15.		Total from 5 to 15.		Total of Persons usually receiving instruction	Total actually educated	Above 15 years of age.		Of all ages.		Total Population.
	Males.	Females.	Males.	Females.	Males.	Females.	Males	Females			Males.	Females.	Males.	Females	
1822	605	572	535	502	492	489	1027	991	2018	1702	2332	3196	3964	4759	8723
1835	1200		—	—	—	—	2050		2050	1327	5706		3937	4983	8920

The period of education is here assumed to be between 5 and 15 years of age.

There is a public subscription library in the town, with an annual income of about 150*l.* It was established in 1812, and now possesses upwards of 4000 volumes. The annual subscription is one guinea, besides a guinea at entrance. A dispensary, now combining the advantages of an infirmary, was instituted in 1813. The number of patients who receive the benefit of this charity is between 150 and 200 each year.

The expenses of the town may be divided into two classes, parochial and corporate.

1. *Parochial Expenses.*—It may be noticed to the credit of the place, that long before Sturges Bourne's Act was passed all matters relating to the poor were transacted by a select body called 'trustees,' who were elected annually by the rate-payers, and the present select vestry is only a legalized continuation of the same body under a different name. In no place, perhaps, are the poor-laws more judiciously, economically, and humanely administered. In 1820 the poor-rates, on the houses, lands, and fisheries within the parish, amounted to 5388*l.* Since then a considerable reduction has been effected, and for the year ending March, 1834, the sum raised was only 3984*l.* Prior to the year 1828 the expense of supporting prisoners and other charges usually payable out of county-rates, were paid by the corporation. Since then they have been defrayed by the parishioners at large, and a rate in the nature of a county-rate

has been levied for the purpose. The first year it amounted to 500*l.*; 1830, to 800*l.*; 1831, to 250*l.*; 1832, to 450*l.*: 1833, to 200*l.*; and in 1834 to 1300*l.* In the last-mentioned year the expense of rebuilding a wooden bridge over the river Whiteadder, called Gainslaw Bridge, is included. There are on an average 80 paupers constantly in the workhouse, and 100 poor children are educated there. The expense of the whole of this establishment does not much exceed 500*l.* a year. The total annual value of all the houses, lands, and fisheries within the parish is a little above 31,000*l.*

2. *The Expenses of the Borough.*—We have already seen that the total annual value of the corporation property is 10,000*l.* a year: besides this the corporation is in possession of various charity properties. Of this sum about 6000*l.* is annually divided among the resident burgesses, and burgesses' widows, whether poor or rich, and of whatever rank of life, according to their seniority, a few of the very youngest being excluded—which sum, as will afterwards be seen, is considerably more than the surplus revenue; 3000*l.* are paid in salaries to officers, schoolmasters, &c., and for the maintenance of the prison, repair of the public streets and water-works, and the like; interest at 4½ per cent. is paid on the permanent debt due by the corporation, and there is also a further item of expenditure called the 'contingent accounts,' for repairs of farm buildings, law expenses, &c., which averages upwards of 1500*l.* The debt, which is borrowed on bond at interest, and on life annuities, calculating the latter at ten years purchase, is 55,411*l.*: the annual amount paid in annuities is 973*l.* 17*s.* 6*d.* The whole of this debt, except 9530*l.*, has been incurred within the present century. It is still gradually and regularly increasing. In the year ending 1832, upwards of 2650*l.* were added to it, and it is apparent that if the same system be persevered in, the property of the corporation will, at no distant date, be entirely consumed. (For further account of the history of this debt, see *Municipal Corporations' Reports*, part iii.)

The liberties of Berwick are divided into two unequal halves by Halidon Hill, which rises to the height of about 540 feet, and runs in a westerly direction. The slope to the east is rapid, and between its base and the sea there is a stripe of rich level land, which increases in breadth towards the town, forming what are called the Magdalen Fields. The slope to the south is more gradual, and the ground which lies between its undefined outline and the boundary is very irregular, being a succession of hill and plain: in one of its ravines the Whiteadder flows, and terminates its course in the Tweed. At this place the northern banks of the Tweed are flat and almost level with the water, but towards the town they rise abruptly to a very considerable elevation, forming the Castle Hills, on the flat top of which a great part of the town is built.

In this small tract of ground there is no natural wood, and the only plantations are on the shelving banks of the Tweed, about a mile above the town, and in a deep ravine on the north-eastern side at Marshall Meadows, but both of these are of small extent, and the wood of inferior size. The land, with the exception of the very ridge of Halidon Hill, is in general rich, well fitted for the growth of all kinds of grain, and is in a state of the highest cultivation. Such a district has apparently little to interest the naturalist, but the botanist may still find the *Sisymbrium Irio* on the spot where it was gathered nearly 200 years ago by the great Ray, and the *Picris echioides* deserves his notice, for it here reaches its most northern limits in our island. Of animals there are none peculiar to the district. The snow-bunting, called the 'cock-of the-north,' visits Berwick annually in small flocks, however mild the winter may be; and some birds, esteemed for their rarity, have been observed as stragglers, viz., the sea-eagle, the pied fly-catcher, the Bohemian wax-wing, bittern, rose coloured pastor, the grey phalorope, and the black-throated diver.

That small portion of the Tweed which bounds the liberties affords the principal supply of salmon, for which the river has been so long famous. Gilse, or grilse (salmon of the first year), salmon-trout, bull-trout, whitings, and silver-white or black-tails, are also abundant; but, with the exception of the first, are comparatively little esteemed, and of inconsiderable value. Sturgeon occasionally enter the river, apparently to deposit their spawn; and we may remark that young cod and whitings are taken abundantly with a bait *in the river* below the bridge, beyond which, however, we are not aware they ever penetrate. The fry of the cod-fish proceed considerably further up, and seem fearless of meeting with fresh water.

The sea-coast is rocky and bold, though less so than that of Berwickshire. The rocks belong to the coal formation. Those at the mouth of the river, and for nearly a mile northwards, are encrinal limestone, composed almost entirely of encrinites, or St. Cuthbert's beads, terebratulæ, and various species of productus. This limestone was once worked and burned, but the produce must have been of inferior quality, and the works have been discontinued for several years. The rocks as we proceed northwards gradually pass into a red softish sandstone, in which the waves have excavated numerous recesses or *coves*: and the high and perpendicular walls of these basin-like excavations sometimes jut out and are broken into picturesque pinnacles, studded with tufts of sea-flowers, and stained with lichens of every hue. Beneath this sandstone, towards Marshall Meadows, there are again strata of limestone, composed of encrinites in such enormous masses that no one can look on them without surprise and wonder.

The bay abounds in fish of the finest quality. Cod, haddock, whiting, ling, holibut, skate, and two or three species of flat-fish or flounders are those commonly brought to market, where they are sold at the most moderate rate, a large and fine cod costing not more than 1*s.*, and haddocks may generally be bought at 1*d.* or 2*d.* each. Turbot and soles are rare, the demand for them being insufficient to encourage fishermen to fish for them. Crabs and lobsters also abound, and the greater number of the latter are sent to the London market. There are no shell-fish, properly so called.

These are the most usefull kinds, but the naturalist may be curious to know the rarities, of which a short list may be given:—

Myxine glutinosa; Galeus vulgaris; Lamna monensis; Raia radiata; Syngnathus æquoreus; Scomberesox Saurus; Liparis Montagui: Raniceps trifurcatus; Pleuronectes punctatus; Blennius tentacularis: Labrus maculatus; Brama marina; Trachinus major; Zeus Faber.

The character of the inhabitants is marked by a want of enterprise. Without being rich they are contented and happy, nor does poverty appear among them in the frightful form which it assumes in larger towns. They are benevolent, little excitable, are not given to intemperance, and in this character we may find one cause of their remarkable exemption from crime.

(See Hutchinson's and Wallis's *History of Northumberland*; Ridpath's *Border History*: Raine's *History of North Durham and Berwick-upon-Tweed*; Fuller's and Johnston's *History of Berwick*: Dr. Johnston's *Flora of Berwick*; *Statuta Gildæ*, inaccurately published by Skene Nicholson's *Leges Marchiarum*; Rymer's *Fœdera*; *Rotuli Scotiæ*: and the other publications of the Record Commissioners; Chamberlain's *Accounts*, in the Register Office, Edinburgh; *Wardrobe Accounts*, in the British Museum; Burrow's *Reports*, vol. ii. p. 834, *et seq.*; Chalmers's *Caledonia*; *Berwick Harbour Surveyed*, by Commander E. J. Johnson and Lieutenant M. A. Slater, 1831.) [*Communication from Berwick.*]

BERWICK, JAMES FITZJAMES, DUKE OF, a natural son of James, duke of York, afterwards James II. of England, by Arabella Churchill sister of the great duke of Marlborough, was born at Moulins in the Bourbonnois, August 21, 1670. He was educated in France, and in 1686 served in the Austrian army at the siege of Buda. In 1687 he was created duke of Berwick, and received the order of the garter. Having returned to England after the campaign of 1687, he received several important military appointments.

On the breaking out of the Revolution of 1688, the duke of Berwick exerted himself to check its progress, and afterwards accompanied the king on his retirement to France. In 1689 he served in the expedition to Ireland, undertaken for the restoration of James II., whence he returned to France in 1691. Having entered the French service, he was promoted to the rank of lieutenant-general in 1693. In 1696 he was sent to England to negotiate with the jacobite party in England, but speedily returned without success. In 1703 he was naturalized as a subject of France with the consent of the court of St. Germain's; and in the beginning of the following year was appointed to the command of the French forces in Spain. After having essentially served the cause of Philip V. by his military skill, he was recalled through court intrigue at the end of the campaign of 1704. In the beginning of 1706 he was made a marshal of France, and was again sent to command in Spain, where in 1707 he won the decisive battle of Almanza, against the Earl of Galway and the Marquis de las Minas, immediately after which Philip V. created him a grandee of the first class, by the title of Duke of Liria and Xerica. Having served on the Rhine and in Flanders in 1708, he was sent in 1709 to command in Provence and Dauphiny; his successful defence of this frontier against the superior force of the Duke of Savoy, is the chief foundation of his military fame, and has been considered a masterpiece of strategy. During the remainder of his life he was constantly employed in important commands, with the exception of the period from 1724 to 1733, during which he lived in retirement. He was killed by a cannon ball at the siege of Philipsburg, June 12, 1734.

The Duke of Berwick was twice married; first in 1695, to a daughter of the Earl of Clanrickarde, who died in 1698. By her he had one son, who succeeded to his titles and estates in Spain. Secondly, to a niece of Lord Bulkeley, in 1697. In 1709 he was created a duke and peer of France, with remainder to his children by her. The present duke of Fitzjames descends from this marriage. In military reputation, particularly for the conduct of defensive war, the Duke of Berwick stands high among the generals of his period. Both his public and private character are represented by Montesquieu as deserving of the highest panegyric. His memoirs down to the year 1716, written by himself, with a continuation to his death by the editor, and a sketch of his character by Montesquieu, were published at Paris in 1778.

BERWICK, NORTH, a town and parish in the county of Haddington, Scotland, situated on the coast at the mouth of the Frith of Forth. The town is twenty-two miles north-east of Edinburgh, eleven north-west of Dunbar, and ten north from Haddington.

The parish stretches about three miles along the sea-coast, and is in breadth inland about two miles and a half. It may contain an area of somewhat more than 4000 acres. The whole parish is arable, except the hill called North Berwick Law, and about eighty-nine acres of links or downs near the sea. On the shore, a little to the eastward of the harbour, on a sandy hill, stands a picturesque little ruin: antiquarians have not ascertained whether it was the chapel of a nunnery, an hospital, or a hermitage.

About two miles to the east of North Berwick stands the castle of Tantallon, on a high rocky cliff overlooking the sea, which surrounds it on three sides. In shape it is half an irregular hexagon. It is encompassed towards the land side by a double ditch; the inner ditch appears to have been very deep. The entrance was by a draw-bridge; but it is not known when it was built. Inside the castle is a labyrinth of broken staircases and vaulted chambers and passages. Much of the building remains, though in a ruinous state. Formerly it was one of the strongholds of the Douglas family, and Lindsay of Pitscottie relates a siege of it by James V.

The town government of North Berwick, which was made a royal burgh by James VI., is in the hands of two baillies, a treasurer, and nine councillors. The burgh joins Lauder, Dunbar, Jedburgh, and Haddington, in sending a member to parliament. The parliamentary boundaries are fixed by the Scotch Reform Act. The burgh consists of a long street running east and west, at the east end of which is the town-house, and a street which leads to the harbour. The pier is tolerably good, but the harbour is difficult of access. The inhabitants have a common for cows near the town. The burgh has little or no trade. There is a good reading-room and inn; and the parish church and manse are within the boundaries of the town. The number of houses of the annual value of 10*l.* and upwards in the burgh was, in 1831, in all 71. The assessed taxes were 97*l.* 6*s.* 3*d.* The gross population was, in 1831, in the burgh and parish, 1824; the number of houses inhabited was 284; the number of families, 415; the number of houses uninhabited, 15; the number of families chiefly employed in agriculture, 175; in trade, manufactures, and handicraft, 105; all other families not comprised in the two preceding classes, 135; the number of males was 853, of females 971. In this parish there are 14 men employed in fishing, and 12 in quarries; and the number of capitalists, bankers, professional and other educated men is 19.

The stipend of North Berwick is worth, on an average, 116*l.* sterling; and the glebe, which consists of six acres, is, from the richness of the soil, of considerable value. The poor are supported partly by the liberality of the patron of the parish, partly by the kirk-session, and partly by a fund of somewhat more than twenty guineas per annum left for their use. The whole sum expended on the poor amounts to about 90*l.* sterling.

(*Communications from Scotland;* the *Scotch Boundary Reports;* the *Enumeration Abstract of Population Returns;* Sinclair's *Statistical Account of Scotland,* vol. v.; *Scotch Reform Act;* Grose's *Antiquities,* vol. i.)

BERWICKSHIRE, situated on the south-eastern extremity of Scotland, is bounded on the east by the German Ocean; on the north by Haddingtonshire; on the west by Roxburghshire and part of Edinburghshire; by the river Tweed and part of Roxburghshire on the south, and on the south-east by the township of Berwick. Its most northern point lies in 55° 58′ 30″ N. lat., and its southern extremity, upon the Tweed, is in 55° 36′ 30″. Dunse, its largest town, situated nearly in the centre of the county, is 2° 20′ west of Greenwich. The greatest length of the county is thirty-one miles two furlongs; the greatest breadth nineteen miles and a half; and its area is estimated at 285,440 English statute acres, in Mr. John Blackadder's Map of Berwickshire, from actual survey, published in 1797 in Edinburgh, and at 285,600 English statute acres by Mr. William Couling, civil engineer and surveyor, in his general statement of the territorial surface of Great Britain, &c., given to the Emigration Committee in May, 1827. Mr. Couling estimates the cultivated lands in Berwickshire—the arable lands, gardens meadows, and pastures at 160,000 acres; the uncultivated or waste lands capable of cultivation, at 100,000; and the unprofitable lands or surface occupied by roads, lakes, rivers, canals, rivulets, brooks, farm-yards, quarries, ponds, ditches, hedges, fences, cliffs, craggy declivities, stony places, barren spots, woods and plantations, &c., at 25,600 English statute acres. If we take this estimate, the area of the county in square miles is 446¼. The sea coast of Berwickshire is about seventeen miles and a half in length, from the boundaries of the township of Berwick to its junction with East Lothian. Greenlaw, the county town, is situated thirty-seven miles to the south-east of Edinburgh. The gross population of this county in 1831 was 34,048.

The surface of Berwickshire is upon the whole more level than is common in Scotland; it is hilly to the north and west, and slopes towards the south and east. The principal part of the county seen from an eminence looking towards the Tweed, appears a level surface of fields, gardens, and trees, with towns, villages, and castles interspersed; it contains however several considerable elevations, and valleys watered by rivers and streamlets. Hume castle, about three miles south of Greenlaw, is built on an elevation of trap-rock, 898 feet above the level of the sea. This building, which forms a conspicuous and picturesque object to the whole of the inland district of Berwickshire, now consists of only a few battlements made out of the ruins of the former castle by the late Earl of Marchmont, so as to look like a castle at a distance. The old castle, after being taken by the English in September, 1548, and retaken by the Scots in 1549, was at last taken by some of Cromwell's troops in 1650, and damaged so much that it became a ruin. Almost every parish contains the ruins of some fortified place; a memorial of the unsettled state of the borders before the Union.

The following table shows the elevation of the principal hills of the Lammermoor above the level of the sea, and the parishes in which they are situated:—

Hills.	Heights.	Parishes.
Lammerlaw	1500 feet	Lauder
Sayerslaw	1500 do.	Longformacus
Dorringtonlaw	1145 do.	Do.
Boonhill	1090 do.	Legerwood
Soutra	1000 do.	Channelkirk
Cockburnlaw	912 do.	Dunse
Dunslaw	630 do.	Do.

The coast consists of bold rocky precipices of considerable height, and is almost inaccessible except at Eyemouth and Coldingham bays, and at two or three other places where sandy or gravel beaches at the foot of the rocks are accessible to fishing-boats. From the boundaries of the township of

Berwick on the south the coast trends N.N.W. for eight miles and a half to St. Ebb's or St. Abb's Head, where it takes a W.N.W. direction for nine miles, until it is met by the boundaries of East Lothian. All the streams of Berwickshire, except the Eye and its tributaries, which fall into the sea at Eyemouth, and a few brooks which run into the sea at other places, flow into the Tweed. The Leader, or Lauder, runs through the vale of Lauderdale, and after a course of about seventeen miles joins the Tweed, where that river begins to form the south boundary of Berwickshire. The Whiteadder rises in East Lothian, unites with the Dye in a vale among the Lammermoor hills, receives the Blackadder, near Allanbank in the vale of the Merse, and falls into the Tweed within Berwick bounds, about three miles from the sea. The Blackadder and its feeders rise on the southern slopes of the Lammermoor hills. The Eye rises in Haddingtonshire. Coldingham Loch is the only lake of any extent in Berwickshire. It covers about thirty acres, is at a considerable elevation to be so near the sea, and abounds with perch: it forms a lively feature in the bleak and sterile tract in which it lies. There are several rivulets and small *lochs* or lakes, but they are very inconsiderable; all the streams abound in trout and eels, and some contain pike and perch: a few salmon and sea-trout ascend the Whiteadder, and the Tweed abounds in excellent salmon and grilses. Dunse Spa had once some little repute as a mineral spring.

The chief post-road from Edinburgh to London passes through Ayton to Berwick. The other post-road leads from Edinburgh by Greenlaw. The cross turnpike-roads, like the post-roads, are managed by parliamentary commissioners, who are empowered to take, in all, 228 miles of road under their charge. The parochial roads are superintended by local commissioners, and supported by a money tax instead of statute labour. Mr. Blackadder, in his excellent map, estimates the whole extent of roads, whether parochial, post, or turnpike-roads, at 647 miles 3 furlongs; but it is no doubt greater than this now.

The climate is comparatively dry, and upon the whole favourable to agriculture. With respect to the parish of Eccles, on the north bank of the Tweed, nearly six miles from Kelso, it is stated as follows in the New Statistical Account of Scotland, p. 51, No. IV. 'The heat of springs in the parish is 48°, which may be considered the mean annual temperature of the atmosphere. The state of the weather from an average of five years is as follows:—120 rainy days, 12 snowy days, 39 frosty days, and 234 fair days, making the proportion of rainy to fair days as 1 to 2 nearly. The mean height of the barometer for two years was 29.39 inches, which gives 304½ feet for Eccles above the level of the sea.' The prevalent winds in spring are from the eastern points, and in autumn from the west: the winters are seldom very severe or long, though cold frosty weather is apt to continue far into summer and blast the prospect of orchard fruit.

The geological features of Berwickshire are instructive and interesting. Thin seams of coal are found in the low lands: a little limestone in various places, and clay-marl on the banks of the Whiteadder and Blackadder. Gypsum is got in small quantities on the banks of the Whiteadder. Shell-marl, which is found in several places, is worked in the parish of Merton. Sand-stone pervades the greater part of the county. Slate of indifferent quality has been worked near Lauder. Coarse pudding-stone occurs, and the outer pier of Eyemouth harbour is built of it, and has long withstood, without apparent waste, the storms of the German ocean. At Ordwell and other places attempts have been made to work some copper ore which has been found, but without success. Professor Playfair, in his Illustrations of the Huttonian Theory, mentions several interesting facts in the geological features of Berwickshire. For some miles beyond Berwick upon Tweed the secondary strata of various kinds prevail until the sea-coast intersects a primary ridge, the Lammermoor Hills, which run from west to east; the section which the sea-coast makes of the eastern extremity of this ridge is highly instructive, from the great disturbance of the primary strata, and the variety of their inflexions. The junction of these strata with the secondary on the south side, is near the little seaport of Eyemouth; but the immediate contact is not visible.

On the north side of the ridge the junction is at a point called Siccar, not far from Dunglass. By being well laid open and dissected by the working of the sea, the rock here displays the relation between the two orders of strata to great advantage. Dr. Hutton himself has described this junction. (*Theory of the Earth,* vol. i. p. 464.)

The appearances of the primary strata on the coast of Berwickshire also exemplify the waving and inflexion of the strata on a large scale and with great variety. A section of one of them is given by Dr. Hutton in his *Theory of the Earth*, vol. i., from a drawing made by Sir James Hall. The nature of the curve into which the schistus is bent is the better understood from this, that, besides transverse sections from north to south, the deep indentures which the sea has made and the projecting points of rock exhibit many longitudinal sections in a direction from east to west. Near the village of Priestlaw, in Lammermoor, in Berwickshire, on the little river of Fassnet, occurs an instance of real granite, disposed in regular beds, but without any character of gneiss. Playfair's *Huttonian Theory*, sections 190, 201, 291.

Agriculture.—The climate of Berwickshire, from its geographical position and its proximity to the North Sea, is colder and more subject to sudden variations of temperature than the more inland and southern parts of the island. The harvest is in general three weeks later than in the counties south of the Humber: but the weather, on the whole, is drier than in the western counties of Scotland or the north-west of England,—a very great advantage in an agricultural point of view. This is ascribed to the influence of two ranges of high land, the Cheviot hills on the south, and the Lammermoor hills on the north, which are connected by a range of lower hills on the west; these boundaries embrace a considerable extent of country, and include the basin of the Tweed between them and the sea. This basin contains numerous smaller elevations and dales comprehending the Merse or lowlands of Berwickshire, the detached northern part of the county palatine of Durham, and parts of the counties of Roxburgh and Selkirk. This tract of land shelves gradually from both sides towards the Tweed, which receives all its streams. It exhibits the most improved practical system of husbandry, by means of which the disadvantages of a northern climate have been overcome, and a soil but moderately fertile on the whole has been made to produce in perfection all the crops which were formerly confined to the more southern parts of the island. What we shall here briefly detail of the agriculture of Berwickshire must be considered as applicable to the whole district above-mentioned, and also to the valleys lying between the Tweed and the Tay in Scotland, and a great part of the counties of Northumberland and Durham south of the Cheviot hills in England. We shall therefore have frequent occasion to refer to this article when treating of the agriculture of the surrounding counties.

Berwickshire may be divided into two distinct portions, the hills and the lowlands. Some of the eminences which belong to the Lammermoor hills rise to more than 1500 feet above the level of the sea. They are consequently bleak, cold, and unproductive, except on their lower slopes, where tolerable pastures are found, in which a hardy race of sheep and cattle are reared. In the midst of the hills there are several small valleys which are capable of cultivation, and the industry and perseverance of the inhabitants have converted many apparently barren moors and bogs into tolerably productive arable land. The parts called the lowlands of Lauderdale and Cockburn's Path contain about 10,000 acres of land fit for cultivation. The remainder, to the amount of 175,000 acres, consists of high hills covered only with heath and furze, and of sheep-walks of a moderate quality. The Merse contains about 100,000 acres of land diversified by smaller hills and dales, which form a pleasant undulation of the surface, with a soil which is extremely various. The different kinds of soil, from the most compact clays and loams to the loosest sand and gravel, often occur in a very small compass, not unfrequently in the same field, if it be of any considerable extent. Most of the farms have land attached to them of every variety and quality, but on the whole the good soils prevail. There is a peculiarity in this county worth noticing, in the total absence of chalk, or of any perceptible quantity of calcareous earth in the soil. There are a few veins of limestone in the western part of the county, but in consequence of the want of coal mines, except in the south-eastern extremity of the county, none of it is burnt into lime; so that this substance, so useful as a manure and a means of improving the soil, is brought from a considerable distance. Along the course of the Tweed, the Whiteadder and Blackadder rivers, there are long tracts of a very fine deep and free loam lying on a substratum of gravel or clay; and throughout the valleys the good loamy soils prevail. Those which are of a heavier kind are well adapted to the growth of wheat and beans, and the lighter to that of turnips and barley or spring wheat. The following division of the soil of Berwickshire is given in the agricultural report of the county, drawn up for the board of agriculture in 1793 by Mr. John Home. And we have no reason to doubt its being tolerably correct:—

	Acres.
Deep loam on the principal rivers . .	25,410
Clay lands in the *how* (hollow) of the Merse	40,380
Turnip soil in the remainder of the Merse, in Lauderdale, Westruther, Merton, Nethorn, Longformacus, and other arable parts	119,780
Meadows, moss, and moor of Lammermoor and Lauderdale, including some arable patches	99,870
	285,410

What is here termed *meadows* means coarse marshy pastures, which are sometimes mown when fodder is scarce. They differ widely from what are called meadows in England, which in Scotland go under the general name of old grass land, to distinguish them from the arable lands laid down to grass for a few years, according to the convertible system of husbandry. The old grass lands are seldom mown, but generally depastured.

This last division is now considerably diminished by the improvements made by draining and cultivation, and we shall not be far from the truth if we take off a fifth part, and add it to the preceding division; or, taking round numbers, we may reckon that there are at least 200,000 acres of productive land more or less improved and cultivated, and about 80,000 in a state of nature, including woods. This, considering the extent of high ground, gives a very favourable idea of the spirit and industry of the proprietors and farmers. The best soils are of a reddish colour, indicating the presence of oxide of iron in that state of oxidation in which it is most favourable to vegetation, and to which it is reduced when clay is burnt which contains it. In every part of the county moors occur of greater or less extent, some of which are very poor. The thin black soil of the moors is of a loose porous nature, covering a subsoil of an impervious till or barren clay. Being soon saturated with moisture, which cannot penetrate the subsoil, it becomes of the consistence of mud. When the water is at last dried by evaporation, it leaves a loose mass without coherence, which is soon converted into dust. Such a soil can never be improved with any prospect of advantage. But where the subsoil is of a more porous nature, and drains can be made to carry off the superfluous moisture, the soil may be made productive, when rendered active by the application of lime and consolidated by cultivation.

There are not many very large estates in Berwickshire, although many of its proprietors have extensive estates in adjoining counties, or elsewhere: but some estates of no great extent are very valuable, from the richness of the soil and the improved state of cultivation. Many proprietors reside on their estates, and are their own agents, which is a great advantage to their tenants, who being in constant intercourse with their landlords are stimulated to greater exertions, and feel more confident of being treated with fairness and liberality. The lands in the hands of the proprietors are generally cultivated in the most approved manner, which keeps up a spirit of emulation and improvement among the tenants. Several considerable landed properties have been acquired by the profits of agriculture, or have been originally derived from that source. The proprietors of these estates continue to feel an interest in the pursuit to which they owe their fortune, and are generally foremost in all agricultural improvements.

The farms in Berwickshire are generally of considerable size, from 500 to 1000 acres, or more, and tenanted by men of good capital, who pay their rents punctually, and cultivate the land in a regular and scientific manner. Leases, generally for nineteen years, are almost universal; and this may be considered as one of the chief causes of the high state of cultivation in which the land is kept, and the expensive improvements which have been made by the tenants. All the land is inclosed, or may be so, at the cost of making the fences: there are no common lands, or rights of common. Antiently a great part of the arable land in Scotland was divided into various narrow strips, spread over a considerable extent of ground, and separated by grass baulks, as was the case in the old common fields in England. Land lying in this manner was called *run-rig* and *run-dale*, and a most inconvenient arrangement it was, which made any considerable improvement impracticable. The origin of this division may be traced to the feudal times, when the lord of the soil parcelled out the land amongst his retainers. The most fertile spots were naturally coveted, and were divided so as to prevent any jealousy; each had a portion of what was considered the best, and also of what was inferior. These allotments being accumulated, or subdivided by purchase and by inheritance, produced that inconvenient distribution of run-rig and run-dale, consisting of long strips of a few furrows wide up hill and down hill, parallel to each other, every strip having a different owner. When agriculture began to be more than the mere means of obtaining food, and the expenses of cultivation began to be reckoned, the necessity of collecting the dispersed portions of land became apparent. The first step to improvement was to lay them into common fields, and to adopt a regular mode of cultivation. The next advance towards a better system, was a general division and inclosure of properties. For this purpose two acts of the Scottish parliament were passed in 1685 (ch. 23 and 38), which empowered proprietors to exchange their various detached lands and collect them into large fields for the purpose of inclosure. This was done by a very simple legal process, attended with little difficulty or expense. All common rights were commuted at the same time, and every one had his land, as much as possible, collected together, and freed from all interference. Under the sanction of this law all the lands in Berwickshire, with very few exceptions, were soon divided, and a great part inclosed. They have now been so for more than a century past, so that the remembrance of the old divisions is nearly lost. There are still some common-field lands, which belong to royal corporations, and cannot be divided; the general act of inclosure excepted them by a special clause. Such is the land that belongs to the royal borough of Lauder, which is divided into 105 portions, the proprietors of which, by inheritance or purchase, were, before the passing of the Reform Bill, the only freemen and voters in the borough: so that the whole corporation might possibly be vested in a single individual who should become possessed of all the portions. Each of these portions is about two statute acres, and to the whole is attached a common pasture, or outfield of 1400 acres, of which, by common consent, a portion is regularly broken up for tillage, and divided by lot among the freemen; the remainder is common pasture, subject to a certain stint. A common herd is kept, who takes care of all the cattle, drives them out in the morning, and brings them home at night.

A considerable inconvenience, and another remnant of feudalism, remained much longer, and is scarcely yet entirely removed. This is the right of *thirlage*, as it is called, or the obligation which a tenant is under to grind at the lord's mill all the corn used in his family, and, in some cases, all the corn grown on the farm; this was originally intended merely to keep up the rent paid by the miller. Old prejudices long retarded the removal of this very impolitic restraint: and the more liberal modern landlords found that they gained more in the improved rent of their farms, by the removal of the restraint, than they ever could have done by any increased rent of the mill. The millers, without any monopoly, find that they have fully as much work as before, and the rents of the mills have kept pace with the increased rents of the land.

The farm-houses and buildings in this county, which were formerly clumsy and incommodious, or mere cottages and hovels, are now mostly of a very superior order, better adapted to the improved condition of the tenants, and the more advanced state of agriculture. The houses of the most substantial farmers are not inferior to the dwellings or *manses* of the ministers, and in many instances far superior. Perhaps the desire of giving accommodation to a superior class of tenants has led to an unnecessary extravagance in erecting some of the more modern structures. In the necessary farm buildings, especially those by which a greater quantity of live stock may be conveniently kept, it is scarcely possible to be too liberal. The farm buildings erected within the last twenty years are, in general, well planned and commodious, and have no doubt contributed to introduce substantial tenants, and an improved system of husbandry.

Labourers.—The system adopted in Berwickshire, and generally in the north of England and in Scotland with respect to labourers, is well worth the attention of their southern neighbours. The unmarried men are mostly lodged and boarded in the farm-house, the married men have cottages on the farm: the rent of the cottage is a part of their wages. The cottages are built at a small expense, generally in rows, and without upper floors. The expense of erecting one of the simplest construction is not above 20*l.*; and the fitting it with fixture cupboards and beds, which are generally boarded and closed in with doors, somewhat like the berths in a ship, will cost from 10*l.* to 15*l.* more. A table, a few chairs, a chaff bed, and a very few kitchen utensils, will set up a young labourer and his wife in his new home. They are, however, more provident in general than the labourers in the south, the poor-rates being but a slender refuge against misery; and when a young man takes his wife into the cottage provided for him, they have probably some little money between them, beyond what is merely necessary to begin to keep house with, which they have saved out of their wages. A very interesting account of the mode in which the labourer is paid in the south of Scotland appeared in the *Quarterly Journal of Agriculture*, published in December, 1834, from which, as the latest authority, we abstract what follows:—

'The terms of engagement of a married ploughman, or *hind*, as he is called in this district, are as follows: he has a cottage and garden rent free; the run of a cow in summer; straw and three cart-loads of turnips in winter to keep her; or, instead of the turnips, sixty stones of hay, as may suit his master best; the produce of 1000 yards of potatoes, measured along the drill, for which he must find seed, his master finding the dung and labour; sixty bushels of oats; six bushels of peas: eighteen bushels of barley of the best quality, after the seed has been taken out. This is given about Christmas. Formerly as much land was given as a peck of lint-seed could be sown on, but this is now generally commuted for 500 yards of potatoes in addition to the 1000 mentioned before. This is owing to the cheapness of the linen manufacture, which discourages the women from spinning flax and having it woven. In one point of view this is a loss, spinning being a good employment of spare time. Formerly poultry and sheep were kept for the labourer, but they are now generally commuted for money; 15*s.* being given yearly instead of the poultry, and 3*l.* for the sheep. Coals are driven for the ploughman, if required, which is generally a back carriage when the corn is taken to market. The whole of these allowances may be reckoned to the farmer as equivalent to a payment of 26*l.* a year, or 10*s.* weekly; but to the ploughman they are worth much more than that sum in money. The cow not only supplies the family with wholesome food, but brings money by the sale of butter and cheese. The wife, or the daughter if grown up, is bound to work for the farmer whenever she is required at 8*d.* or 10*d.* a day, especially in harvest. At this time she must work as long as it is light, as well as her husband, but then they are both fed at the farm. The manure of the cow belongs to the farmer. The garden is manured from the pig-sty, a pig being generally fed for the consumption of the family. The shepherd has, besides this, the keep of eight ewes winter and summer, which make his wages equal to 35*l.* a year. This increase is on account of the greater responsibility of his situation. The farm-steward has a similar addition in money or grain. Unmarried ploughmen living with their parents receive similar allowances, except the keep of the cow, for which they have an equivalent in money. When they are fed in the house with the domestic servants, they receive about 5*l.* half-yearly as wages. Females living in the house receive 5*l.* or 6*l.* for the summer half-year, and 2*l.* or 3*l.* for the winter. They milk the cows, attend to the dairy, and, when not so employed, work in the fields. Stable-boys have their food, and 5*l.* or 6*l.* per annum. All the farm-servants are hired by the year, the domestic servants half-yearly. There are various hiring-markets in March, which are well attended. Reapers, both men and women, get 12*s.* to 14*s.* per week and their victuals, consisting of oatmeal porridge and milk for breakfast and supper, and a pound and a half of wheaten bread and a quart of beer for dinner; they have half a pint of beer besides in the afternoon.' (See *Quarterly Journal of Agriculture*, p. 380, December, 1834.)

There is a practice in Berwickshire, advantageous to all parties, of letting small portions of grass-land to cottagers, mechanics, and small tradesmen in villages, which enables them to keep a cow without being incumbered with land. They pay a high rent for the grass, but this is the whole outlay. Several proprietors of cows frequently join to hire the feed of a field. The high rent remunerates the farmer, and the milk and butter of the cow are cheaply obtained by the owner. This is a kind of division of labour which also takes place on a larger scale in the letting of turnips to breeders and jobbers of sheep, instead of the grower purchasing a flock, which he may be obliged to sell at a loss when the turnips fail. At all events the breeder and jobber are more likely to make a profit by the sheep, which is their trade, than the farmer, whose attention is taken up with the various operations on his farm.

The system of cultivation generally adopted on the arable land, is that which consists in having a great part of the land in artificial grass and green crops for a certain time, generally from two to four years, and then breaking it up for corn; by which means a much larger quantity of land may be cultivated with a given number of men and horses; the grass being chiefly fed off with the farmer's own stock, or let off to others who have more cattle or sheep than their land will maintain.

The rent of land, taking its quality into consideration, is higher than in any part of England, even if the poor-rates and tithes be added to the English rent. This is owing partly to the greater skill and capital of the farmers, and partly to the steadiness and industry of the labourers, which lessens the expense of cultivation. From 4*l.* to 5*l.* per Scotch acre, equal to 1¼ English, is not uncommon even now. Corn-rents were common at one time, and begin to be introduced again, but most of the leases granted within the last thirty years are at a fixed money rent. Personal services, and *boon* rents, that is, certain specific payments in kind to the landlord, such as poultry, butter, or cheese, are now unknown. The landlords find it more convenient to have horses and servants of their own, than to trust to the compulsory services of the tenants, which are never well performed, and are a great hinderance to the regular work of a farm. All tithes, with very trifling exceptions, were commuted above two centuries ago. There is something in the shape of a poor-rate, half of which is paid by the tenant, and half by the landlord, as well as the salary to the schoolmaster; but the amount is trifling. In 1808, according to the agricultural survey, the whole charge on the tenant amounted to no more than 2*d.* in the pound. The poor-rate has however increased very considerably since, but not so as to be compared to that which presses so hard upon the farmer in some parts of England.

When a tenant takes possession of his farm, the buildings are delivered to him in good repair, and he must maintain them so at his own expense, during the term of his lease. The covenants of a lease are generally very simple, and liberal as to the mode of cropping. The tenant is bound to consume all the straw on the premises, and leave what remains in the last year for his successor. In consequence of some spiteful tenants consuming the straw by burning it, in order to injure their successors, a clause prohibiting this waste has been sometimes inserted in a lease; but it is unnecessary, since an action for damages might be sustained at law, and such conduct would most likely be severely punished in the damages awarded. The in-coming tenant has usually the right to sow clover and grass-seeds with a part of the last tenant's crop of corn; and he enters on the land intended for turnips or fallow half a year or more before the expiration of the lease. In fact, this part of the land should be given up immediately after the harvest of the last year but one, or it should be ploughed before winter for the next tenant, at a stipulated price. The out-going tenant has the use of the barn and rick-yard, for securing and threshing out his corn; and he is bound to thresh it regularly, so as to supply the cattle of the new tenant with straw, or he may be compelled to do so, by application to the sheriff or his substitute.

A general clause of good husbandry is always inserted in all leases, and in case of wilful mismanagement, a jury would give adequate damages. It is sometimes stipulated that no two white straw crops shall be taken in succession, and that the turnips shall be drilled in rows. When the tenant is debarred the right of assignment, the lease becomes by the Scotch law an hereditament, and as such goes to the next male heir. Formerly, rents were paid at a long period after entry, owing to the small capital of the farmers; but now they are generally made due and paid every six months, or expected at latest within the first nine months, and from that time at the expiration of every six months.

Husbandry.—The usual system of husbandry followed in Berwickshire, as we observed before, is that which is called the convertible system, which we shall now briefly describe. It consists in laying a portion of the arable land to grass every year, and breaking up an equal quantity, which has been in grass from two to four years or more. This must not be confounded with that imperfect and slovenly practice of letting land, exhausted by repeated cropping, remain at rest as it is called, by abstaining from any cultivation, after having sown some grass and hay-seeds with the last crop, until it gradually recovers some degree of fertility by being in rough pasture for some years. The Berwickshire system consists in laying down the land to grass in a clean state, and in good heart, by sowing clover and grass-seeds with the crop of corn which immediately follows a fallow. The profit of the land when in grass is not much inferior to that which is obtained when it bears corn, and sometimes is greater, the expense being much less. Old grass-lands are not often broken up, unless it be to improve the herbage, which in some soils becomes coarse, or mixed with useless weeds. The principal object of the farmer in the convertible husbandry is to lay his arable land well down to grass, so that when he ploughs it again, it is improved by having been pastured, and is in a sufficiently clean state to bear several good crops, without the intervention of a fallow. Three years in succession is the usual time that the land is in grass. It is seldom mown for hay more than once in that time, but fed off during the other two years. If the grass appears to fall off in quantity, or to deteriorate in quality sooner, it is immediately ploughed up and sown with oats, of which the crop is generally abundant after grass newly broken up. Sometimes the land is immediately prepared for wheat, by repeated ploughings, which break the sods and allow the soil to consolidate by the rains. This prevents its being kept too loose and spongy by the undecayed roots of the grass, which would be very injurious to the wheat in a dry summer. In Norfolk, wheat, is often dibbled on the sod of the grass merely turned over by one ploughing; or the land-presser follows the plough, and gives the necessary solidity to the bottom of the furrow for the roots of the wheat to strike in. Where either of these methods can be used to advantage, a considerable labour and expense are saved; and the land-presser, which, as far as we know, is not much used in Berwickshire, might be introduced with advantage on the light soils. The next year after the oats or wheat, turnips are sown in drills after repeated ploughings and abundant manuring. These are fed off in the course of the autumn and winter, and barley or spring wheat are sown in spring, together with white and red clover, trefoil, and grass-seeds; when the land is again converted to pasture, and continues so for two or three years as before. The deviations from the forgoing rotation are, that on the most fertile lands, where wheat is usually sown instead of oats in the first year after grass, wheat comes again after the turnips, which are fed off early in autumn, so as to have two crops of wheat, with one of turnips between them. The grass-seeds are sown in spring among the second crop of wheat. In very poor soils, oats supply the place of wheat. Beans are not very generally cultivated; but on very stiff soils, which will not bear turnips, they come in well after wheat, and may be followed by oats, and then a fallow for wheat and grass-seeds. The grass is apt to fail the second year on such very cold lands, if they are not well pulverized and completely drained; and this has introduced a variation in the cultivation of such lands, the grass being broken up after the first year. This is owing in a great measure to a want of attention to the state of the land when the grass is sown; with good management stiff lands will produce good herbage for two or three years.

In the best turnip soils, the following rotation is not uncommon:—1. Wheat on the clover ley. 2. Turnips fed off. 3. Wheat. 4. Beans. 5. Wheat. 6. Turnips. 7. Wheat with grass-seeds.

This frequent recurrence of wheat, and the intermediate beans and turnips, can only be obtained on the best description of alluvial loams; and then the land must be highly manured for the turnips in the second and sixth year, and for the beans after the wheat. This may be effected where manure can be purchased, but scarcely, in any sufficient quantity, where it is all made on the farm. The ground, however rich, must in the end be exhausted. By substituting barley in the third and seventh year, the last-mentioned rotation is like some rotations adopted in Essex and Suffolk, except the addition of the three years of grass, and may be more generally recommended for imitation. Another rotation is the following:—1. oats; 2. peas or beans; 3. barley, oats, or wheat: 4. turnips, with dung and lime; 5. wheat, oats, or barley, with grass-seeds, to be fed off three or four years. As the grass is the foundation of all these rotations, and its duration cannot always be foreseen, it is evident that great variations must occur; and it requires no little skill and ingenuity to suit the various crops to the state of the land and the seasons, and to keep horses and men regularly employed without hurry or confusion. Potatoes, tares, and other green crops for cattle, are raised on part of the fallows. The turnips are universally cultivated on the Northumberland plan, that is, in rows at two feet six inches distance; the manure placed directly under the row is by laying it in furrows, and covered with the plough by splitting the ridges. A roller prepares the ground for the drill, which deposits the seed directly over the line of the dung. [See TURNIPS and DRILL.] A part of the turnips are drawn and given to the cattle in the yards in winter, and, with the addition of straw only, keep them in good condition. The remainder is fed off with sheep on the ground, or let to breeders and jobbers for that purpose. It has long been the practice in Berwickshire and surrounding counties to depend on letting a great part of the turnips which are grown on a farm to men who rely on these lettings for their cattle and flocks in winter. In consequence of this practice, turnips have been raised without any regard to the stock on the farm, and the grower seldom fails to find customers at very fair prices. The comparative low price of corn for the last few years has induced farmers to extend the cultivation of turnips and of barley, by draining cold wet clays, which otherwise would have been unfit for these crops, of late more profitable than wheat. The use of bruised bones for manure, lately introduced, has also extended the cultivation of turnips on the sharp light lands; and as a natural consequence, more sheep have been fattened, and the market has been overstocked, so that the speculators in fat sheep have lost considerably. Still the system has proved of advantage to the farmers, and enabled them to meet their engagements with their landlords, which were entered into when wheat bore double the price it has lately done; and rents have not fallen so much as might have been expected. (*Communication from Berwickshire*, May, 1835.)

The grasses usually sown are in the following proportions:—6 lbs. of red clover, 4 lbs. of white clover, 4 lbs. of trefoil, and 3 pecks of perennial rye grass per acre. Hay is comparatively of inferior value to what it is in other counties nearer large towns, and no more is made than is absolutely required for working horses; the cows and oxen are entirely fed on turnips and straw. The grass, as well as the turnips, is often let to graziers, who from their experience in buying and selling stock, make a better profit than the farmer could, and are enabled to give a fair price for the feed. This is another example of the division of labour in agriculture, by which all parties are gainers.

There are no large dairies in Berwickshire. Butter is made for the use of the farmer's family only, except near towns, where a portion is sold in a fresh state. The markets are mostly supplied by the labourers who sell their butter, the produce of the cow kept for them by their masters, as part of their wages.

The common implements of husbandry are few, but of the best construction. Small's swing-plough, a light and improved instrument, is in general use, and no plough can be better adapted to every variety of soil. It is entirely made of iron, and is an improvement on the Rotheram plough, originally introduced from Flanders. It is almost invariably drawn by two horses abreast, except in some very wet clays, where the horses would tread the land too much, if they did not walk in the furrow. In a few cases where very heavy soils are broken up, three horses are used, either in a line, or more commonly two abreast and one before. The light swing-plough is the chief instrument of tillage: it works between the rows of turnips or beans with one horse, acting as a horse-hoe, and throwing the earth alternately from the plants, and towards them. Simple horse-hoes are also in general use, as well as narrow grubbers to go between the rows and loosen the soil, and double mould-board ploughs for earthing-up potatoes: common harrows and rollers complete the assortment of instruments in general use. The old and expensive operation of weeding the growing crops by hand, which is still practised in more southern counties, is here almost entirely avoided by the care taken to clean the land for turnips or when it is fallowed. The only weeds which require attention are docks and thistles, which will occasionally spring up in spite of every precaution.

On the whole, we may pronounce the husbandry of the counties in the north of England, and the south of Scotland, to be the most economical and profitable of any practised in the British empire, and calculated to produce the greatest rent to the landlord, with a fair profit to the farmer, and a comfortable existence to the labourer.

Cattle.—There is nothing to be particularly remarked in the cattle of Berwickshire. On the hills there is a coarse breed of black cattle, which fatten well in the richer pastures of the valleys, and produce well-flavoured meat. The short-horned oxen from Yorkshire and Durham are in repute with the larger farmers for stall feeding. The Holderness and Ayrshire cows are preferred for the dairy and for their calves. Oxen are scarcely ever used in the plough or for draught, experience having established the superiority of horses, in spite of all the assertions and calculations of theoretical writers. Horses are more active and obedient in all kinds of work, and the decrease in the value of the animal, when old, is more than compensated by his superior usefulness while in his prime, and by the variety of uses to which he may be put. The farm horses are generally of a middle size, muscular, and active, with clean legs without much hair on them, nearer allied in shape to the coach-horse than to the heavy English cart-horse. They are mostly bred in the counties of Ayr and Lanark, in the west. Those which are bred in Berwickshire are chiefly out of picked mares, and got by stallions imported from the south or west. But the breeding of horses is not a regular branch of the rural economy of this county, as it is in Yorkshire or Lincolnshire. A pair of good horses is considered sufficient for the tillage of forty or fifty acres of arable land of a moderate degree of tenacity; and as one-half of the land is always in grass, a pair of horses to every 80 or 100 acres of a farm of turnip-land is a fair proportion; provided the distance from markets and from lime be not considerable, as this makes a material difference in the carting required to be done.

The teams work ten hours a day in summer, at two yokings of five hours each, and six hours in winter, at one yoking. They plough an acre and a quarter of land on an average in a day in summer, and three-quarters of an acre in winter, which is more than is usually done in the south, if we except the light lands in Norfolk, where they frequently plough an acre and a half or more in a day. The horses are fed in summer on green food, cut fresh for them, and in winter on straw and oats. When hay is scarce, it is reserved for the time when they work hardest in spring. Each horse has usually two or three feeds of oats per day for nine months in the year; the other three months they have green clover, which is sufficient without corn.

Sheep.—There are several sorts of sheep in Berwickshire. On the hills the black-faced Tweedale sheep are most common, being strong and hardy, and able to endure the severity of the climate. They are horned, and their wool is coarse. In the Merse, and along the slopes of the hills, the improved breeds have been introduced from the south: chiefly the Leicesters, as they thrive admirably on the old pastures and artificial grasses, which the convertible system of husbandry produces in great abundance. They are well adapted to small inclosures, as they seldom roam about like the wilder breeds, provided they have sufficient food around them. The Cheviot breed of sheep, which is common in Roxburghshire, is also to be met with on the lower range of hills in Berwickshire. A very good breed has been produced by crossing the Cheviot with the Leicester. The Southdown breed of sheep has been tried by a few individuals and found to answer well; but it is not so general as the Leicester and the crossed breeds above-mentioned. Good sound grass will maintain five Leicester sheep on an acre during the six summer months, and half an acre of turnips will keep them the remainder of the year; thus the value of grass and turnips may be calculated from the improvement of the sheep, and *vice versâ*. Where so large a portion of the arable land is regularly laid down to grass, and this is chiefly fed off with sheep or cattle, it is of great importance to the farmer, that he should be able to select those animals that are best adapted to the soil and climate, and that will improve most rapidly on the food which is given them. Hence great attention is paid to the improvement of the various breeds of sheep; and rams have been selected and brought from Leicestershire and Northumberland at a great expense. A peculiar branch of rural economy has arisen from this, that of rearing rams for the sole purpose of letting them for the season. The best ewes are selected to breed from, and the ram lambs are kept on the most nutritious and invigorating food, in order to bring them to a great size, and make them excessively fat at two years old. They are then let to the breeders at very high prices. Whether this over-feeding is judicious or not is very doubtful; but it is natural to suppose, that an animal which can be made so fat at an early age possesses a constitution well adapted to convert food into flesh and fat, rather than into bone and sinew, and, consequently, is more profitable to the grazier; and that this quality will be more or less imparted to his progeny. But the nature and quantity of the food required to fatten him should also be taken into consideration, for it is not always the fattest animal that gives the greatest profit, but the animal that gets to a certain degree of fatness on the smallest quantity or the cheapest kinds of food. Those extremely fat animals that are exhibited at shows are seldom very profitable on the whole when slaughtered; and a breed which fattens moderately, but quickly, may be much more profitable than one which will grow to a very great size, and become extremely fat, but slowly. This is one reason why the small highland cattle are in general so much more profitable to the grazier, in moderate pastures, than the heavy Durham or Hereford breeds. Leicester sheep, which are very profitable on rich grass land, would scarcely live on the downs.

Pigs.—There was formerly a great prejudice in Scotland against the use of pork for food, and consequently that useful animal the pig was not much prized. The more frequent intercourse with England introduced the rearing and fatting of pigs as an article of commerce, and a great quantity of pickled pork and some bacon was exported from all the principal ports. The old prejudice is now almost entirely overcome, and pork adds much to the comforts of the farmer and the labourer. The breed of pigs has been much improved by careful selection and the importation of the best breeds. The Chinese pigs have contributed to his improvement by their great fruitfulness. No particular breed can be named as prevailing in Berwickshire, but some very good pigs are met with here and there; and, from their prolific nature, a very little attention will soon discover the most profitable kinds, and make the coarser be rejected. Bacon is not so generally used as in the south of England: pickled pork is preferred. The Scotch labourer does not waste the liquor in which the pork has been boiled, by throwing it into the hog-wash, but makes a mess with cabbages, pease, and oatmeal, in which the pig broth is an essential ingredient.

Fairs.—The principal fairs in Berwickshire are at Dunse, Berwick, Lauder, Coldstream, Greenlaw, and Oldhamstock, and the great fairs in Northumberland and those in East and West Lothian amply supply the farmer with means of purchasing or selling stock. The first fair at Dunse is held on the first Thursday in June, where there is generally a good show of fat cattle and milch cows. The former are chiefly bought by dealers from the south, who drive them to Morpeth, Darlington, Skipton, Wakefield, &c. This fair is considered as the best fair in the south of Scotland for fat cattle. A considerable quantity of two-year-old beasts, in good condition, are bought to go to Lincolnshire and other English counties, where they are kept for twelve or eighteen months and then sent to Smithfield, where they pass for Lincolns, although bred in Scotland. The heifers, in the same manner, find their way southward, and when they have calved pass for York or Durham cows. The breeders of short horns in Berwickshire may challenge any other county for producing steers that will fatten well at two years old. Another fair is held at Dunse on the 26th of August, or the Tuesday after in case it should fall on a Saturday, Sunday, or Monday, but it is much inferior to the first. The third fair is held on the 17th of November, or the Tuesday after in the same way, but is not of much importance. There are four sheep markets in the year at Dunse, which have not been established many years, but which improve yearly: they are held on the fourth Wednesday in March, third Wednesday in May, second Wednesday in July, and fourth Wednesday in September. The July market is also a great wool market, where a great deal of business is done, wool being a very considerable part of the farmers' produce.

The Berwick fairs are held three times in the year, on the second Friday after Whit-Sunday, on the Wednesday before the 28th of August, and on the first Wednesday of November. These fairs are next in importance to those of Dunse.

The fairs or markets at Lauder were formerly well frequented, but since the establishment of several others have much declined; they are held the sixth Tuesday after the first Tuesday in March, the third Friday in June, the fourth Tuesday in July, and the fourth Friday in October. There are also sheep and cattle shows at Lauder established a few years ago by the Lauderdale Agricultural Society, at which some remarkably fine animals are annually exhibited: the oxen chiefly short horns, and the sheep Leicesters, Cheviot, and black-faced. The fairs at Coldstream are monthly, established about twelve years ago, and are now held on the last Thursday of every month.

Greenlaw is the county town of Berwick, but its fairs, held on the 22d of May and on the last Thursday in October, are not very considerable. An attempt was made in May, 1834, to establish another fair for hiring servants and for the sale of stock, which may probably succeed when its character shall have been established. The fairs at Oldhamstock in the Lammermoor hills are not of much note, except for the immediate neighbourhood. The first is held on the first Tuesday in July, the second on the first Tuesday in November. There are various other fairs, but more for the amusement of the inhabitants than for the purpose of business.

Divisions, Towns, &c.—Berwickshire contains thirty-one parishes and parts of two others; Home annexed to Stitchel in Roxburghshire, and part of the parish of Oldhamstocks in East Lothian.

The parishes of Berwickshire are distributed into three presbyteries, Dunse, Chirnside, and Lauder; the last contains two parishes not within the county, and two parishes within the county are in other presbyteries. The whole of the parishes of Berwickshire belong to the synod of Merse and Tiviotdale except Cockburn-path, which is in the synod of Lothian and Tweedale.

The county is divided for the monthly sessions of the justice-of-the-peace court and the militia ballots into small districts consisting of three or four parishes.

The towns are few and small. Berwick, from which it has its name, is no part of the county: it is, however, the principal place for exports. Dunse is the largest in size and population. Greenlaw is the county town; Eyemouth is the only shipping port; the other towns of any note are Lauder and Coldstream.

The salmon fishery on the Tweed is most valuable within the township of Berwick. There are paper-mills at Broomhouse, Ayton, and Allanbank, which gives employment to from 120 to 150 people.

Population.—The population of the county, as enumerated in the years 1801, 1811, 1821, and 1831, is as follows: 1801, pop. 30,621; 1811, pop. 30,779; 1821, pop. 33,385; 1831, pop. 34,048. In 1821, the number of houses inhabited was 5803, and in 1831 it was 6159: the number of families in 1821 was 7165, and in 1831 it was 7385: the number of houses building in 1821 was 42, and in 1831 it was 13; the number of houses uninhabited in 1821 was 276, and in 1831 it was 267; the number of families employed in agriculture in 1821 was 3334, and in 1831 it was 2921; the number of families employed in trade, manufactures, and handicraft in 1821 was 1923, and in 1831 it was 1915; the number of all other families not comprised in the two preceding classes in 1821 was 1908, and in 1831 it was 2549. In 1821 the number of males was 15,976, and the number of females was 17,409, and in 1831 it was males, 16,239; females, 17,809. Of late years the migration from Berwickshire has been considerable.

Table of the Number of Commitments, &c., for Crime, in the County of Berwick, during the year 1834.

Crimes.	Persons remaining untried from preceding year.	Persons committed for trial.	Persons convicted.	Persons acquitted.	Persons tried.		Sentences of those convicted.
	Males.	Males	Males.	Males.	No.	Before what court.	
Robbery and assault .	3	1	3	.	3	Justiciary.	1 death, 2 transportation for life.
Theft . .	.	5	3	.	3	By jury, without jury, and by justices or other court.	Imprisonment for three months or less.
Theft by housebreaking .	.	2	1	1	2	Justiciary.	Transportation for 14 years.
Assault . .	.	15	14	1	14	6 by jury, 3 without jury, 5 by justices or other court.	Imprisonment for three months or less.
Breaking Windows .	.	1	1	.	1	Without jury.	Ditto.
Rioting . .	.	1	1	.	1	Ditto.	Ditto.
Vagrancy & Breaking Windows .	.	2	2	.	2	Ditto.	Ditto.
Vagrancy . .	.	2	2	.	2	Justices	Ditto.
Contravening Act 9 G. IV. s. 69	.	2	2	.	1	Without jury.	Ditto.
Trespassing in search of game .	.	1	1	.	1	Ditto.	Ditto.
Contempt of Court . .	.	1	1	.	1	Ditto.	Ditto.

Civil History.—At the time of the Roman invasion Berwickshire appears to have been occupied by the Otadini. (See Ptolemy II. 3.) It was afterwards invaded and peopled by bands of Saxons about the middle of the fifth century. This district was part of the kingdom of Northumberland until the year 1020, when it was ceded to Malcolm II. by the earl of Northumberland. About the eleventh century several Anglo-Saxon and Norman families settled in Berwickshire. Berwick then began to rise into importance, and became for centuries after a point of contention between the Scotch and the English. [See BERWICK.] Greenlaw was made the county town by James VI. in Nov. 1600.

Antiquities.—The antiquities of Berwickshire, as might be expected from its position as a border county, the scene of much predatory warfare, are interesting. There are tumuli, cairns, military stations, and ruined castles in almost every parish; and also the remains of some religious houses. The nunnery of Coldingham is said to have been the oldest nunnery in Scotland: it is mentioned as early as 661, when Abbe or Ebba, sister to Oswy, king of Northumberland, was abbess. It was several times burnt and rebuilt. The English seized it in 1544, and fortified the church and steeple, and the earl of Arran, governor of Scotland, attacked it in vain. Upon the forfeiture of the earl of Bothwell's estates the lordship of Coldingham was given to Lord Hume, in whose family it remains. Of this priory the only remains are the single aisle of the church. The windows at the east end are circular. Inside the south wall are two stories of pointed arches; several ruined arches are at the east and west end. Dryburgh Abbey was founded in 1150 by Hugh de Morville, lord of Lauderdale. There are remains of the convent, the refectory, several vaults and other offices, part of the cloister walls, and a fine radiated window of stone work. The area of the abbey is used as burying aisles, and contains the remains of the late Earl of Buchan and of Sir Walter Scott. The Peath's Bridge (or Pees), near the coast, a few miles distant from St. Abb's Head, crosses a wooded chasm more than 160 feet deep, at the bottom of which there is a rivulet; the banks are remarkably steep and precipitous, and hence the place became one of the strong passes of Scotland. The present bridge was finished in 1786, and consists of four unequal arches, with cast-iron rails. It is only sixteen feet broad, and has from its vast height the appearance of an ancient aqueduct. It is best seen at some distance down the bank. About two miles north-west of the Peath Bridge stands Cockburn's Path Tower, overlooking a deep woody glen, through which runs a small stream. It consists of a small, strong, square tower of rough stone, with a circular staircase in its south-west angle; adjoining its most southern staircase is a gate with a circular arch, on entering which on the right are the ruins of a number of vaulted buildings. The place is mentioned in Scottish history several times. Fast Castle, a picturesque ruin, is also at a short distance south of Peath's Bridge, on a precipice overhanging the sea. It was a fortress of the Earls of Hume, and subsequently was the dwelling of Logan of Restalrig, who was concerned in the Gowrie conspiracy. The barony of Coldbrand's (otherwise Cockburn's) Path was attached to the Scotch earldom of March. The parish of Earlston, originally Ercildoun, in this county, was the birthplace of Sir Thomas the Rymer, celebrated by Sir Walter Scott in his 'Minstrelsy of the Scottish Border,' and part of his tower or castle still remains, besides a stone said to have covered his grave. Thirlstane Castle, in the parish of Lauder, was built by the celebrated Scottish Chancellor Maitland. Eccles was the native parish of Henry Home Lord Kames. In it there is a cross, supposed to have been erected after the second Crusade, and some remains of a nunnery.

(*A Map of Berwickshire from Actual Survey*, by John Blackadder, Edinburgh, 1797; *Third Report of the Emigration Committee; A General View of the County of Berwick*, by Robert Kerr, Edinburgh, 1813; Grose's *Antiquities of Scotland*, fol. edition; *First Report of the Salmon Fisheries' Committee; Second Ditto; Third Ditto; Tables of the Revenue Population, &c. of the United Kingdom; Enumeration Abstract of Population Returns;* Chambers's *Gazeteer;* Sinclair's *Statistical Account; The New Statistical Account of Scotland;* Gough's *Camden*, vol. iii.; Chalmers's *Caledonia*, vol. ii. pp. 198—395; Morton's *Monastic Annals of Teviotdale;* Playfair's *Illustrations of the Huttonian Theory;* Carlisle's *Top. Dict. of Scotland, and Communications from Berwickshire.*)

BERYL, a mineral species among the varieties of which are found two of the most beautiful and costly gems with which we are acquainted, namely, the emerald and the precious beryl. Before entering into the particulars of these varieties, which from their beauty and price have the greatest claim on our attention, we will state the general and scientific properties by which the whole species may be recognised and distinguished from other minerals.

They belong to the rhombohedral system of crystallization, usually occurring in regular hexagonal prisms which occur variously modified, sometimes by the truncation of the lateral edges of the prism, at other times by the simple truncation of the terminal edges; but the prism is sometimes terminated in a much more complicated manner, of which a remarkable instance has presented itself in a crystal in the possession of Professor Naumann, of Freiberg, who has observed in them the faces of no less than six other forms of the rhombohedral system. For a full description of them we must refer our reader to the *Lehrbuch der Mineralogie* of that mineralogist, where, under the head of Smaragd, will be found all the varieties of form which have been observed in this mineral. It seems better in this instance to give rather a popular than a strict description, when the latter would force us into the use of symbols probably unintelligible to the majority of our readers; and the more particularly in this case, as we believe attention to the following points will be more generally useful in the determination of this crystal; namely, that its general aspect is always that of a hexagonal prism, and that when the terminal edges are modified, there will generally be found a plane inclined to the lateral planes of the prism under an angle of 119° 58′.

The crystals admit of cleavage in the four directions parallel to the faces of the regular prism, that parallel to the terminal plane being perfect, the others imperfect and more difficult to be obtained. The fracture is conchoidal and uneven; the lustre is vitreous, and it possesses various degrees of transparency. According to Mohs, the hardness varies from 7·5 to 8, the specific gravity from 2·678 to 2·732. The following are its chemical characters before the blowpipe, as stated by Berzelius.

Alone it is not easily acted upon, but when thin fragments are for a long time submitted to a powerful flame, the edges become rounded and a colourless vesicular scoria is produced. The transparent varieties become milky.

With borax it forms a clear and generally colourless glass, which effect is also produced by soda. With the phosphor salt it is with difficulty dissolved without the formation of a silicious skeleton.

Of this mineral we possess several analyses, of which the following are three: the first being an emerald from Peru, by Klaproth; the second a beryl from Siberia, by the same chemist; and the third a beryl from Broddbo, near Fahlun, in Sweden:—

	Emerald.	Beryl. Siberia.	Beryl. Broddbo
Silica . .	68·50	66·45	68·35
Alumina . .	15·75	16·75	17·60
Glucina . .	12·50	15·50	13·13
Oxide of iron .	1·00	0·60	0·72
Oxide of columbium	0·00	0·00	0·27
Oxide of chromium	0·30	0·00	0·00
Lime . .	0·25	0·00	0·00

From his analyses Berzelius has adopted the formula $\dddot{G}\ \dddot{\mathrm{Si}}^4 + 2\,\dddot{Al}\ \dddot{\mathrm{Si}}^2$ to represent the atomic constitution of this mineral; Naumann and Beudant, however, consider it to be as follows:—

$$\dddot{G}\ \dddot{\mathrm{Si}}^3 + 2\,\dddot{Al}\ \dddot{\mathrm{Si}}^3.$$

This species contains several varieties, of which the two known among lapidaries under the name of emerald and aquamarine, or precious beryl, are the most worthy of attention. These varieties, though distinguished by some mineralogists as forming distinct species, differ, however, only in colour, the term emerald being applied to those possessing the peculiar rich, deep green, so well known as the emerald-green, while all the other varieties are comprehended under the name of beryl; those which are clear, transparent, and possess a good colour, present various shades of sky-blue or mountain-green, being the aquamarine or precious beryl. The colour of the emerald is attributed to the small quantity of green oxide of chromium which has been found in the specimens from Peru: while the varieties in the tints of beryl may be considered to be produced by admixtures of the oxides of iron, the yellow being the colour of the peroxides of iron, and the mountain-green and the various shades of blue being the effect of varying quantities of the protoxide, to the presence of which the common bottle-glass owes its tint.

The following localities produce the finest emeralds: the mines in the Tunca Valley, situated in the mountains between New Granada and Popayan, and not far from the town of Santa Fé de Bogota, where, according to Humboldt, they are found in veins traversing clay-slate, hornblende slate, and granite; the Heubach valley, in the district of Pinzgau, Salzburg, where they occur imbedded in mica-slate, and are inferior in colour to those from Peru: varieties have also been lately found in some old mines in Mount Zabarah, in Upper Egypt, from which spot the antients are supposed to have derived their emeralds.

The varieties known by the name of beryl are found principally in Siberia and Brazil: in the former country it occurs in the granite district of Nertschinsk, and also in the Uralian and Altai mountains, sometimes in very large crystals, prisms having been found upwards of a foot in length. In the granitic mountains of Odon Tchelon, in Da-uria, three very interesting mines occur at different elevations in the mountain; in the lowest are found, irregularly disseminated through a mass of semi-decomposed granite mixed with ferruginous clay and nodules of Wolfram, prismatic crystals of beryl of a greenish-yellow colour, rarely exceeding one inch in length. Some hundred feet higher occurs the second mine in a vein of micaceous clay, from which the most valuable crystals are obtained; their colour is of a pale but pure green, and their size frequently considerable. The third mine is situated in a vein of white indurated clay on the summit of a mountain; in this mine the varieties are usually of a pale greenish-blue, but sometimes they are found of a pure but pale sky-blue. They are here remarkably transparent. Imbedded crystals and massive varieties are also found at Limoges, in France; near Zwiesel, on the Rabenstein, in Bavaria; at Fimbo and Broddbo, near Fahlun, in Sweden; and likewise in some of the tin mines in Saxony and Bohemia.

An enormous specimen is also described in Silliman's *Journal*, as having been found at Acworth, in New Hampshire, United States. Its dimensions are stated to be four feet in length and five inches and a half across the lateral planes, and the weight to be 238 lbs.

Specimens of beryl have also been found in several of the primary districts of Ireland; those from the granite of the

Morne Mountains, in the county of Down, are the finest. In this locality they are associated with topaz, black quartz, felspar, and mica. In Scotland it is found in the granite at Rubeslau quarry, near Aberdeen, and also in broken pieces in the sand of the rivers of that county.

The value of the emerald depends not only on its size, colour, and brilliancy, but also on its being free from flaws, by which this gem is frequently greatly deteriorated in the eye of the jeweller. The following is the rate at which varieties of a fine colour and free from fissures may be procured, as stated by Beudant:—

A stone of 5 grs. from 100 to 120 francs.
„ 8 „ 240
„ 15 „ 1500
„ 24 „ 2400

BE'RYX, in zoology, a genus of fishes of the order *Acanthopterygii*, and belonging to a little group of the family *Percoïdes*, in which the species possess more than seven branchial rays, whereas all the other genera included in the first division of this order (in which division the cheeks are not defended by indurated plates) possess seven or less.

Cuvier, in his *Règne Animal*, mentions three other genera belonging to this group, viz.: *Holocentrum*, *Myripristis*, and *Trachichthys*. These will be noticed hereafter.

The remaining principal generic characters of Beryx are as follows:—Ventral fins, with one spine and ten soft rays; the back furnished with but one slightly-extended fin, and some indistinct small spines on its anterior edge.

BESANÇON, a city in France, near the south-eastern frontier, chiefly on the left or south-east bank of the river Doubs, a feeder of the Saône; distant about 205 miles S.E. of Paris in a straight line; or 237 miles by the road through Troyes, Dijon, and Dole; and as much through Troyes, Chaumont, Langres, and Vesoul. 47° 14′ N. lat., and 6° 3′ E. long. from Greenwich.

The origin of this town is unknown: local traditions and legends dated it as far back as 434 years before the foundation of Rome; which, according to the received chronology, would be about 1186 years B.C. All that we certainly know is, that in Cæsar's campaign against the German Ariovistus, in the first year of his command in Gaul, B.C. 58, Vesontio (for so the Roman general writes the name) was the greatest town of the Sequani, and a place so strong by situation as to offer to either party the greatest facilities for protracting the war. Cæsar by a rapid march seized the town, and placed a garrison in it. While staying here a panic seized the Roman troops, which it required all the skill and eloquence of their general to dispel. (Cæs. *de Bell. Gall.* lib. i. c. 38-41.) Cæsar has accurately described the situation of the place; it was nearly surrounded by the river Dubis (the Doubs), which here formed a bend, as though its channel had been described by a pair of compasses; and the interval left by the river was occupied by an eminence, which being fortified with a wall served as a kind of citadel. (Cæs. *ibid.*) The interval left by the river is given in our present copies of Cæsar at 600 feet. It is however much greater, and the passage has obviously been corrupted. (See D'Anville, *Notice de l'Ancienne Gaule.*) The Vesontio of Cæsar is 'the upper town of the modern Besançon.'

When under the dominion of the Romans, Vesontio became the capital of the province called Maxima Sequanorum, one of the divisions included in Belgic Gaul, though the Sequani and Helvetii, of whose territories the province consisted, were of the Celtic race. The town flourished while the vigour of the Roman empire continued; but when the inroads of the barbarians commenced it had its share of the general calamities. It was destroyed by the Alemanni in the time of Julian the Apostate, rebuilt, and again destroyed by Attila and the Huns. There are several remains which attest its antient greatness. 'It is rarely the case,' says Expilly, 'that the earth is dug to a certain depth in the neighbourhood of this town, without discovering the wrecks of mosaic pavements, of columns and pillars, either of marble or other stone of the handsomest kind.' The mutilated remains of statues of marble and bronze, medals, and other antiquities, are also, according to the same authority, found continually. There are the relics of an amphitheatre and an aqueduct, of temples, porticoes, palaces, and baths, and of a triumphal arch, erected in honour either of Aurelian, or of Crispus, son of the Emperor Constantine the Great. The latter, which formed one of the gates of the city, [illegible] probably the most perfect monument of antiquity remaining in the place: it is of a low style of architecture. The bas-reliefs, with which it was once adorned, have mouldered away in the course of ages, and the greater part are now obliterated; and of its four columns only two remain. (Malte Brun; Balbi; Expilly; *Dictionnaire Géographique*, par M. Robert.) Many names still retained by the streets or other localities in or near the town are obviously of Latin origin. This is the case with the name of the town itself, from the antient forms of which, Vesontio, Visuntium, Vesantio, and Bisontii, is derived the modern Besançon.

After its destruction by Attila, Besançon was rebuilt by the Burgundians; and since that time does not appear to have sustained any great change beyond that which the lapse of ages and the advancement of civilization have gradually brought about.* Its political condition is not very easy to trace. The territory in which it stands, and of which it was the capital, was successively included in the dominions of the Burgundian and Frankish kings, and formed part of the second kingdom of Burgundy, the kings of which acquired the imperial crown of Germany. This territory was during these changes formed into what was called 'the County of Burgundy;' but it has been more generally known by the somewhat later designation of *La Franche Comté*. Its counts owed feudal subjection to the kings of Burgundy; and upon the accession of these kings to the imperial throne, the counts became subjects of the Germanic empire; and it was during this period, viz. in the twelfth century, that Besançon obtained the rank and privileges of a free and imperial city. These privileges it possessed when it was ceded to Spain by the imperial branch of the house of Austria (into whose hands the Franche Comté had come) by the treaty of Münster in 1648; but upon the conquest of the Franche Comté by Louis XIV. and its final cession to France by the peace of Nimeguen in 1678, the municipal government of Besançon was entirely changed. The town sustained many attacks in the middle ages, and the townsmen repeatedly showed their valour in the repulse of their various enemies. In the interval between the ninth and thirteenth centuries this town was sometimes called Chrysopolis, the golden city. The origin of this designation is unknown.

Besançon is divided into two unequal parts, called the upper and the lower town. The upper town, formerly distinguished as La Ville, is built on a peninsula formed by the river, which here describes nearly a circle in its winding course.† The small part of the circuit of the upper town which is not washed by the stream is occupied by a steep rock on which stands the citadel. The lower town, formerly called Battaus, is on the other side of the river, at the part most remote from the citadel, and is connected with the upper town by a stone bridge, the foundations of which are Roman. The whole is strongly fortified, and Besançon ranks as a fortress of the first class, and one of the keys of France on the S.E. frontier. The citadel, which may be considered as cut in the rock rather than built, is one of the strongest in Europe. It is separated from the country by a deep ditch cut in the rock. A singular ridge of rock, forty to fifty feet high, extends from the citadel to the Doubs; through this natural rampart a passage has been cut, which is called La Porte Taillée. It is very antient.

Although Besançon preserves an air of antiquity, it is one of the best built cities in France. Three streets nearly parallel to each other run from one end to the other of the upper town. The houses are commonly of freestone and of good appearance, and several fountains contribute to the ornament of the place. One of these fountains represents the apotheosis of the Emperor Charles V. There are many fine public buildings. The cathedral, dedicated to St. John, is a very antient edifice, not far from the foot of the hill on which the citadel is built. It is said to have been first dedicated to St. Stephen; afterwards it bore the name of St. Stephen and St. John conjointly, and finally dropped that of St. Stephen upon the erection of another church dedicated to that saint. This last-mentioned church of St. Stephen disputed the claim of the cathedral of St. John to the metropolitan dignity until the controversy was decided by the church of St. Stephen being pulled down in 1668, by order of the king of Spain, to make room for the erection of the citadel. The cathedral of St. John gloried formerly in the possession of a sacred relic—the winding-sheet of Christ (*le saint suaire*), which was exhibited with great solemnity on certain great festivals of the church, and attracted an incredible multitude of persons. It retains now a fine painting of the resurrection, by Vanloo: a St. Sebastian, by Fra Bartholomeo, the master of Raphael; and on the sides of the high altar are two angels in marble, the work of Breton, a sculptor of Besançon. The churches of St. Pierre (St. Peter) and de la Madeleine (the Magdalen) deserve notice, the first for its fine portal, the second for the beauty of its structure.

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* Malte-Brun says it was laid waste by the Hungarians in the 10th century; he ascribes its devastation in the fifth century to the Burgundians, not to the Huns.

† See Cæsar's description noticed above.

Before the suppression of the religious houses at the Revolution, Besançon possessed several. There were four abbeys, one of the order of St. Augustin, two of Benedictines (one of which was held in commendam), and one of Cistercian nuns. There were eleven convents; six of men, viz. two of Carmelites, and one each of Cordeliers, Capuchins, Observantines, and Minims; and five of women, viz. of Ursuline nuns, of nuns of the Annunciation, of the Visitation, of St. Clare, and of an order called 'Tiercelins,' who were not bound by any vow or restricted to the walls of their convent. There were, besides, an association of persons for pious purposes called 'the Brotherhood of St. George,' a commandery of the order of Malta, a house of the Jesuits, and one of the priests of the oratory, a seminary for the education of the priesthood, and a college under the direction of the Jesuits. Besides the chapter of the cathedral there was one attached to the church de la Madeleine which was collegiate. There were at the same period eight parish churches (besides the cathedral and the church de la Madeleine), and several benevolent institutions; three hospitals, two of which were for the bringing up of poor children and foundlings, and a penitentiary house for women. Of these charities modern authorities do not speak, or at least not with sufficient clearness to enable us to identify them as now in existence.

Of buildings not devoted to ecclesiastical purposes there are *Le Palais de Justice*, an edifice of the 16th century; the general hospital, the military hospital, the theatre, and the barracks. The remains of Roman antiquity have been noticed already. (Martinière; Expilly; Malte-Brun; Balbi.) There are some public promenades; the name of the finest, *Le Chamars*, points out the Campus Martius of the Romans. It is well laid out and planted, and extends along the banks of the Doubs.

Besançon is a place of considerable importance for its manufactures and trade. Thread, cotton, and silk stockings; carpets, which are sent to different parts of France, especially to Paris, or exported to Switzerland; linen yarn, coarse woollen and linen fabrics for the use of the working class and the peasantry; fire-arms and leather are made here. The town is also the centre of the watch and clock manufacture introduced into France about the close of the last century. The different pieces or works are manufactured by the workmen and their families in their own habitations: it is the business of another mechanic, the 'finisher,' to unite them into a clock or watch. Watches of all kinds, repeaters, and chronometers, are made here. Watch-cases are cast and turned or otherwise finished in different places in the department. The *Canal de Monsieur*, which joins the Rhine with the Rhône by means of the navigation of the Doubs and the Saône, contributes to the trade of Besançon, which consists in iron goods of various kinds, deals, cheese, grain, wine, and cattle, besides the manufactures already mentioned.

The population of the town is considerable, and a reference to different authorities enables us to trace its gradual increase. Piganiol de la Force, in his *Nouvelle Description de la France* (Paris, 1722), gives it at 11,520; Expilly, in his *Dictionnaire des Gaules et de la France* (Paris, 1762), at about 26,000; the *Dictionnaire Universel de la France* [illegible] 27,469; Malte-Brun, taking the number from the cen[illegible] the last, 28,795. The last two numbers are the population of the commune, and exceed probably by about 5000 the population of the town itself at their respective periods. By the last census (of 1st January, 1832) the population of the town was 24,042, and of the whole commune 29,[illegible] To these we may add 7000 or 8000 strangers, students of the *Académie*, or soldiers of the garrison.

The literary institutions and places of education in Besançon are numerous and important. The public library contains eighty thousand volumes, besides some valuable MSS. Le Musée Paris, the gift of an architect of the name of Paris, a native of Besançon, comprehends antiquities, paintings, and drawings; and the Museum of Natural History contains a rich and extensive collection. The Académie Universitaire has replaced the university which existed previous to the Revolution. The university was established in or about 1422 and 1423, at Dole, by Philippe le Bon (Philip the Good), Duke of Burgundy, and was transferred to Besançon in 1691. Some give to this institution a much higher antiquity, asserting that it was founded at Gray in 1292, by the Emperor Otho, and that the Duke Philippe le Bon only re-established it and transferred it to Dole. The present *Académie* appears to consist of one faculty only, that of literature (*faculté de lettres*). There are a collège royal, or high school; a seminary for the priesthood; a secondary school of medicine, surgery, and pharmacy; a school of drawing and sculpture; a deaf and dumb school for both sexes; and a school of artillery, formerly at Auxonne. There are also a royal academy of sciences, belles lettres, and arts; a society of medicine; and a society of agriculture and the arts. Before the Revolution there was a military literary society, intended chiefly to engage the officers of the garrison to pursue the study of those branches of science suited to their profession. (Malte-Brun; Balbi; Dupin, *Forces Productives de la France.*)

Besançon is the seat of an archbishoprick. The diocese is said to have been established in the third century; and the possessor of the see, after his claim to pre-eminence had been much contested, possessed without dispute the rank of metropolitan in the eighth century. His diocese did not contain the whole of Franche Comté: and his suffragans were only three in number, viz., the bishops of Belley, in France, and Bâle and Lausanne in Switzerland. At present the diocese of Besançon comprehends the two departments of Doubs and Haute Saône, with a population of above 600,000; and the suffragans of the archbishop are the bishops of Strasbourg, Metz, Verdun, Belley, St. Dié, and Nancy.

Besançon was the capital of Franche Comté, under the old territorial division of France, and is now the capital of the department of Doubs [see DOUBS], which has a population of 265,535. It has a Cour Royale, the jurisdiction of which extends over the departments of Doubs, Haute Saône, and Jura; and a Tribunal de Commerce for the settlement of commercial disputes. It is the chief place of the sixth of the military divisions into which France has been partitioned: this sixth division includes the departments of Ain, Doubs, Jura, and Haute Saône.

The arrondissement of Besançon contains 560 square miles, or 358,400 acres; and had in 1832 a population of 96,032. It is subdivided into eight cantons and two hundred and one communes.

Among the eminent natives of Besançon were, Jean Jacques Chifflet, a writer on history, antiquities, politics, and medicine, author of a 'History of Besançon;' Antoine Perrenot, Cardinal de Granvelle, according to Piganiol and Expilly (but in the *Biographie Universelle* he is said to have been born at Ornans), an eminent statesman, in the service of the Emperor Charles V., and his son Philip II. of Spain; Jean Baptiste Antoine Suard, an eminent literary character, and translator of Robertson's 'History of Charles V.' and 'History of America;' and the Maréchal Moncey, Duc de Cornegliano, one of the soldiers of the Revolution and the empire of Napoleon.

BESANT. [See BEZANT.]

BESITTOON, properly **BISUTUN**. The plain of Kermanshah, in that part of modern Persia which corresponds to the antient Media, is bounded on the north by a long range of barren mountains, which terminates most abruptly to the east in a naturally scarped precipice, presenting a nearly perpendicular surface about 1500 feet in height. A portion of the lower part of this surface, about 70 or 80 feet from the base of the rock, and perhaps 100 feet above the general level of the plain, has been cut smooth by art, so as to form an immense tablet, extending about 150 feet in length, by 100 in height, and about two feet below the level of the outer surface of the rock in which it is formed. Below this tablet projects a rocky terrace, which slopes gradually to the level of the plain. The base of this terrace is faced with large hewn stones; and other blocks of stone, wholly or partially hewn, are strewed about in all directions, so as to render it probable that it was originally intended to face the terrace up to the superior level, and perhaps to erect thereon some great structure. The whole, indeed, with the absence of inscriptions and sculptures on the tablet, suggests the idea of a discontinued work. Local tradition states that the famous artist Ferhád, to whom all the antient works in this part of the country are attributed, was to have built a palace on the terrace for the fair Shirîn, by order of the king Khosru Parvîz, but that the work was interrupted by the untimely death of the artist. Sir Robert Ker Porter, however, is rather of opinion that it must have been originally designed as the platform for a temple. The absence of anything of a columnar form among the materials for this structure, in a country where architectural fragments of this description abound on every antient site, is thought by the same author to have occasioned the name of Bîsutûn to be given to the place. The word signifies 'without pillars;' for *sutûn* means a pillar in Persian, and *bî* is the negative prefix. Kinneir considers the term to have originated in the impending and unsupported appearance of the cliff above the tablet. There are also numerous fragments of columns at the distance of a few miles on the road, so that Captain Keppel, instead of considering the word to mean 'no pillars,' conjectures that it may be a corruption of *Bîst-sutûn*, or 'twenty pillars,' in the same manner as the ruins of Persepolis are called by the Persians *Chehel-sutûn*, or 'forty pillars.' This conjecture is at least ingenious; but although the writer of the present article has also seen the bases and shafts of columns on which this etymology is founded, his personal observations did not lead him to consider that they had any connexion with the works at the spot which is properly denominated Bîsutûn.

At the distance of about fifty yards from this platform, immediately above the source of a clear stream which issues from the mountain, there is a broad protruding mass of rock, on which there are remains of an immense piece of sculptured work, but so much defaced that it is scarcely possible to make out one continued outline, although by close attention parts of the rudely-chiselled forms of several colossal figures may be traced. The exceedingly mutilated state of these sculptures has been somewhat singularly produced. In the first place, it appears that a large tablet had been raised in the central portion of the work for the insertion of a Greek inscription, and this again has given place to a recent inscription in the Persian character, relating to the grant of lands for the support of a caravansera, which is immediately opposite to it in the plain. This inscription, being long and very closely written, has nearly obliterated that which preceded. Parts of two lines were, however, deciphered and copied by Sir R. K. Porter, though with difficulty, as this tablet is much higher up on the face of the mountain than the former, and in a situation much more difficult of access.

Kinneir is inclined to concur with the authorities which attribute these works to Semiramis, and it is best to state the grounds of this conjecture here, because it can scarcely extend to the sculptures which remain to be noticed. Indeed, the differences of opinion as to the date of these works arose partly from its having been forgotten that it was not necessary to suppose them all of the same æra. Diodorus (II. 13), following Ctesias (whose residence at the Persian court and his access to Persian documents entitle his statements on such subjects to some respect), says that Semiramis, on her march from Babylonia to Ecbatana, encamped near a mountain called Bagistanon, in Media, where she made a garden of twelve stadia in circuit, in a plain country watered by a fountain. The mountain was dedicated to Jupiter, and, towards the garden, had steep rocks seventeen stadia in height. She smoothed the lowest part of the rock, and caused her image to be sculptured on it, with a hundred of her guards standing around her. Near this she also caused an inscription to be made, in Syriac letters, recording that Semiramis had ascended from the plain to the top of the mountain, by heaping up the packs and fardels of the beasts of burden that were with her. That this is to be referred to Bîsutûn is argued from the consideration, that it is really situated on the road to Ecbatana, which is certainly Hamadân; that one side of the mountain fronts a plain country watered by a small river, which winds round the foot of the hill; and that the rocks are really sculptured in the manner described. The Assyrian queen and her guards cannot indeed be discovered in the remaining sculptures; but their figures may have existed in the large piece, the sculptures of which have been obliterated to make room for inscriptions. To these arguments some add the not improbable conjecture that the present name Bîsutûn may be a corruption of the antient Bagistana, making allowance for the exaggeration which converts 1500 feet into 17 stadia. The identity of the sites is, to our minds, established; and while we feel willing to throw aside so much of the account we have quoted as refers to Semiramis and her exploits, we are rather surprised that no writer to whom we have referred on the subject seems to have perceived that the real value of the statement from Ctesias consists in its proving that the sculptures not only existed in his time, but were even then considered antient enough to be referred to the time of Semiramis.

Somewhat farther to the eastward, and at a greater height on the smoothed surface of the rock, another sculpture appears. It is in comparatively good preservation, and from the superiority of its workmanship, and the general resemblance to the sculptures at Persepolis, may be presumed nearly coeval with those celebrated specimens of antient art. It exhibits a line of twelve erect figures, of about half the size of life. One of them is a king or general, distinguished by his more majestic stature, with two armed attendants behind him. He holds a lance in his left hand, and rests it, together with his left foot, upon the body of a prostrate man who lies upon his back, and with outstretched hands seems imploring for mercy. Standing thus, and holding up his right hand, with the two forefingers extended, and the other two pressed down on the palm, he seems addressing his commands or admonitions to nine captives who stand before him, all of whom have their hands tied behind their backs, and eight of whom are united by a rope passed around their necks. The attitude of the supposed monarch is full of majesty and grace; and in Sir R. K. Porter's opinion, the varied expression in the different faces may be regarded as almost equal to any thing of the kind done by the chisel. There are two old men among the captives: the rest are middle-aged. The exposed limbs of two of them, the outline of the dressed figures, and the easy and natural motion with which they advance, show no common measure of anatomical knowledge in the artist, who might, not improbably, be a Greek in the service of a Persian king. In the centre of the whole, above the heads of these persons, appears the aërial personage who often appears in Persian sculptures, and which is supposed to be the *Ferwer*, a spiritual prototype of the king, which, according to the Zendavesta, always hovers near him.

Over the head of each individual in this bas-relief there is a compartment, with an inscription in the arrow-headed writing, most probably descriptive of the character and situation of each person; and immediately under the sculpture there are two lines extending the whole length of the group. Under these also there are eight deep and closely written columns in the same character. We cannot learn that these inscriptions have ever been copied; nor would it be of much use if they were. We are not wholly hopeless, however, that some process may yet be discovered through which we may be enabled to obtain the historical information, which here and elsewhere is locked up in arrow-headed inscriptions. (Sir Robert Ker Porter's *Travels in Georgia, Persia, &c.*, vol. ii., which contains engravings of most of the objects mentioned in this article; Kinneir's *Geographical Memoir of the Persian Empire*; Erdmann, *De Expeditione Russorum Berdaam versus*, Casan. 1832, t. iii. pp. 86-96; Keppel's *Personal Narrative*, &c.)

BESSARA'BIA, the most south-western province of the Russian empire, consists of those portions of Turkey lying between the Dniester and the Pruth which were wrested from the Turks by the treaty of Bucharest in 1812; they previously formed the north-eastern part of Moldavia and the Budjak, or Bessarabia Proper, and now constitute, under the Russians, one of the provinces included in what is designated 'The Southern Region.' An addition of much importance in a political point of view has since been made to it under the treaty of Adrianople, in 1829: we here allude to the large islands which are formed by the three mouths of the Danube, denominated the Kili, Suline, and St. George's Channels. The Pruth, therefore, and the easternmost line of the Danube, from the point where the Pruth falls into it, to the Black Sea, form the present boundary between Russia and Turkey in Europe.

Bessarabia Proper, also called the 'Steppe of the Budjak,' is separated from the Russian part of Moldavia by the Via Trajana, the most eastern of the Roman roads in this quarter of Europe, which commences at Koszinsko on the Danube, near the mouth of the Serete, is intersected by the Pruth above Falga, and terminates on the right bank of the Dniester, between Bender and Leontieff, a village not far from Kopanka.

Both these subdivisions of Bessarabia composed the eastern districts of the Roman province of Dacia; and at the point where the Via Trajana crosses the Pruth lay the small town of Trajano, or Castra Trajana, probably the Prætoria Augusta of Ptolemy, in the neighbourhood of what is now called the Red Tower, a defile in the most southern arm of the Carpathians.

The Russian province of Bessarabia contains an area of about 18,900 square miles; it extends between 44° 45′ and 48° 40′ N. lat., and 26° 35′ and 30° 60′ E. long., being nearly equal in surface to the States of the Roman Church; while it is more than four times as large as Yorkshire. It is bounded on the north-east and east by the Russian provinces of Podolia and Cherson, from which it is separated by the Dniester; on the south-east by that part of the coasts of the Black Sea which lies between the mouths of the Danube and Dniester; on the south by the Danube, which separates it from the province of Dobrudsha in Turkish Bulgaria; on the west by the line of the Pruth, by which it is separated from Turkish Moldavia; and on the north-west by that part of the kingdom of Austrian Galicia which is called the Buckowine.

If Bessarabia were properly cultivated, there are few countries which would surpass it in productiveness. The larger portion of it, which lies to the north, and once composed part of Moldavia, is traversed by the low and here subsiding range of the Transsylvanian branch of the Carpathian Mountains; its surface presents a delightful succession of hills and dales, the loftier hills being richly wooded, and the less elevated covered with vineyards, while the low lands are characterised by an extremely fertile sandy loam, which is coated with a deep layer of vegetable mould, in many parts improved by the admixture of saltpetre. The Budjak, on the other hand, which lies to the south of this district, though it is comparatively high and incloses several lakes in the vicinity of the Black Sea and Danube, consists of flat monotonous steppes, unrelieved by wood or forest, and is liable to frequent inundations in its southern districts. Its soil is a mixture of sand and clay, peculiarly fitted for agricultural purposes; these districts, however, for want of roads and other facilities of transport, have been hitherto restricted to grazing and the cultivation of fruit. The reed-grounds, which line every lake, and cover the extensive morasses in this part of Bessarabia, supply, in conjunction with dried animal manure and the 'burian,' or jungle-grass, which springs up in the uncultivated lands, a substitute for fuel.

The principal river in Bessarabia is the Danube, which borders it on the south, from the mouth of the Pruth to the Black Sea, and includes the three channels already mentioned, which form the large islands of Zatoka, Tsheral, and Leti, and several minor ones. The next in importance are—its tributary the Pruth, which bounds the province on the west, enters it below Tshernovitz from the Buckowine, quits it between Reny and Galatz, where it falls into the Danube, is navigable throughout its course in this quarter, and is increased by the influx of the Delawez, Rakowez, Tshuger, Baglui, and other streams; the Jalpuch, the largest river which rises in Bessarabia, flows into the lake of the same name in the south-west, and afterwards empties itself into the Danube; the Kogalnik, and Sarata, two rivers in the Budjak, both of which flow into the Black Sea; and, lastly, the Dniestor, a muddy, yellow-tinted, and exceedingly rapid stream, which skirts the northern confines of Bessarabia, entering from the Buckowine near Khotin, and afterwards forms its eastern boundary on the side of Podolia and Cherson, until it discharges itself into the Black Sea. In this line its breadth varies from eighty to one hundred fathoms: its chief tributaries on the Bessarabian side are, the Reut, which has its influx opposite to Dybossari; and the Botna.

The northern part of the province contains no inland waters of any magnitude; the southern, in the neighbourhood of the Danube and Black Sea, abounds with them. Among the last we may mention the great 'liman' (a Russian word signifying an expanse of water mixed with mud, rushes, &c.) of the Dniester, which lies at its mouth, and is eighteen miles in length and five in breadth; lake Sasyk, which has two small outlets through the high rampart of sand that divides it from the Black Sea, and through which the Kogalnk and Sarata flow; lakes Kodshegöl, Katlabuga, Tashpanar, and Saffian, which are connected by canals, and fall into the Danube near Ismail; lake Jalpuch, one of the largest of these waters, and abounding with fish; and lake Kagul, at the mouth of the Pruth, opposite to which the Danube is studded with a multitude of little islands. In the lakes next the Danube the water is sweet, but in those next the Black Sea it is salt. Bessarabia has a number of mineral springs, which have not hitherto been turned to account, or even examined with any care.

The climate is in general mild, salubrious, and agreeable: the grape, the finer kinds of fruit, and melons grow in the open air. The steppes of the Budjak, however, having no shelter from trees or woods, are sometimes so hot in summer that the grass withers; yet the vicinity of the Carpathians, and the more remote range of the Balkan fortunately prevent this extreme heat from being of long duration in ordinary seasons. The winter is piercingly cold in these districts, which are unprotected by the high lands or mountains.

Since Bessarabia has been incorporated with the Russian dominions, the cultivation of the soil has been rapidly improving, and numerous colonies have been settled in the heart of the country: they are principally located on the banks of the Kogalnik, and consist of about 3000 Poles, 2400 Prussians, 2650 Würtembergers, and 200 Frenchmen, Bavarians, Bohemians, &c. The villages in which they reside have been named after the victories gained by the allied forces in the campaigns between 1812 and 1815; such as Culm, Krasnoi, La Fère-Champenoise, Brienne, Leipzig, Beresina, Borodino, Paris, Arcis, &c. One village is called Helvetia, its inhabitants being Swiss, who are employed in cultivating the vine. In 1828 there were nineteen German settlements in the whole province, and sixty-six Bulgarian; the first contained 8681 inhabitants, and the last (chiefly in the district of Ismail) 30,000 and upwards. Notwithstanding these immigrations very extensive districts of productive land remain either uncultivated, or are only used as pasture for cattle and sheep. The descriptions of grain raised in Bessarabia are wheat, barley, millet, and particularly kukuruz, or maize, the meal of which is substituted for wheaten flour. The corn lands, from the facilities for export afforded by the ports of Rény and Ismail, are situated chiefly in that direction; but, in general, the want of markets for grain discourages cultivation, nor are there more than two regular farms in all the country. The growth of the vine has considerably spread since the year 1822, when heavy duties were imposed upon all apples, nuts, and wines brought from Turkey. The vineyards are principally situated in the district of Akerman, in which Helvetia lies: the quantity of wine produced in Bessarabia in the year 1826 was 44,800 vedras (about 145,860 gallons), independently of the produce of the crown plantations, which amounted to 32,000 bottles. The quality has been much improved of late by the introduction of French, Rhenish, and Hungarian stocks. The Palinkowoye Wino, a red wine which is allowed to lie on wormwood for a time, is prepared in large quantities, and esteemed an excellent medicament. Flax, hemp, tobacco, and poppies are also grown, and a multitude of gardens and orchards furnish an abundant supply of apricots, cherries, apples, pears, plums (which are dried and exported from the districts of Orkhei and Khotin), and walnuts. Rock and water melons are extremely fine, in the district of Bender particularly; cucumbers of enormous size are grown, as well as gourds, onions, garlic, and Spanish pepper.

The northern parts of Bessarabia, which are full of forests, especially those about the banks of the Pruth, produce the oak, beech, linden, maple, poplar, and other species of trees; and the districts of Orkhei and Yassy yield excellent oak for shipbuilding. It is of extraordinary dimensions, and chiefly felled in the forests belonging to monastic establishments. The mulberry also thrives in this soil. The great resource of the province is, however, the rearing of horned cattle, horses, and sheep; for the steppes of the Budjak abound in excellent grass, and the northern districts in rich meadows and pastures. In spite of the losses which the owners sustain from exposing their flocks and herds to the violent snow-drifts of winter among the steppes, they are yet enabled to export several thousand heads of cattle and sheep, as well as horses, and to supply themselves with wool in large quantities. Private individuals maintain studs of great extent, and the districts of Yassy and Khotin are celebrated for the number of horses they rear, no less than the excellence of the breeds. The buffalo is not uncommon in Bessarabia. Cattle and sheep from parts beyond the border are brought to be fattened on its rich soil, at the expense of their owners. All kinds of game are found to the north of the Budjak; the steppes in the south are frequented by numerous flocks of waterfowl, by storks, bustards, herons, &c. The fisheries, particularly on the Danube, afford profitable employment to the inhabitants; and Vilkoff, at the mouth of that river, carries on an extensive trade in salted and dried fish, caviar, and herrings; the herrings are prepared with Moldavian rock-salt, accounted nearly equal in quality to the Dutch. Much honey and wax are also produced.

The principal mineral product of this province is salt, which is obtained in considerable quantities from the lakes in the Budjak. The neighbourhood of Akerman, for instance, produced upwards of 112,000 tons (7,000,000 poods) in 1826, and the directors of the salt-works in that quarter estimate that the yearly produce might be raised to seven times that quantity. Much saltpetre is found in the environs of Saroka on the Dniester, where it is procured with little labour and at a trifling expense, and coals have recently been discovered in the north of the province, whose mineral resources remain to be much more diligently explored. It produces likewise bay-salt, Glauber-salts, alabaster, marble, lime, and stone of various kinds. Much charcoal is also made, and part of it is exported to Odessa.

Under the Russians, Bessarabia has been divided into six districts,—in the north, Khotin, the capital of which is the town and fortress of the same name, lying on the Dniester, with 8000 inhabitants; to the south of this is the district of Yassy, chief town Beltzy, 3200 inhabitants; next lies Orkhei or Kisheneff, the capital of which, Kisheneff, on the little river Byk, with 18,500 souls, is also the capital of the whole province: the district of Bender, chief town of that name on the Dniester, with a population of 13,000; that of Akerman or Akkyerman, the chief town of which now bears the same name, and was called Alba Julia in the time of the Romans, a strong fortress with a considerable town and 12,600 inhabitants, on the liman of the Dniester; and lastly the district of Ismail, whose capital of the same name lies on the Kile channel, and was the scene of Suwaroff's bloody assault in 1789; it contains a population of 9000 souls, and has a fine harbour.

With respect to the population of Bessarabia, we find very different statements: Professor Berghaus, on apparently good authority, estimates it at 600,000, whereas Weydemeyer, in his tables of the Russian empire, on the authority of Count Woronzoff's census in 1827, reports it to be upwards of 800,000; Cannabich, on the other hand, affirms that in 1828, the number of inhabitants paying taxes was 409,120, and that in 1831 they had increased to 469,783. The last amount agrees with that given by Professor Hörschelmann in his new edition of Stein's Manual. It seems probable, that as the last-mentioned writers do not give the number of individuals exempt from taxation, Berghaus's estimate of 600,000 is not overrated. It is known that the population includes 8000 gypsies, and is composed of a motley race of Moldavians, Russians, Greeks, Jews, Armenians, and colonists, the last of whom are said to comprise 40,000 souls. The Saporoga Cossacks, who migrated hither from the Turkish side of the Danube in 1828, have also founded several colonies. The peasantry are exempted from all military levies, and there are no serfs or bondsmen in the whole province, with the exception of the gypsies, and in a few cases of household servants.

Bessarabia contains eight towns, sixteen villages with markets, and 1030 without them. These towns and villages contain 134 churches of stone, and 719 of wood, sixteen chapels, twenty-two monasteries and convents, one ecclesiastical seminary, nine district schools, and two asylums for the sick. The villages (Bordie) have in general a miserable appearance, the greater part of them consisting of huts concealed underground; they are seldom without a place of worship. The majority of the Bessarabians are Moldowans or Moldavians, numbers of whom have emigrated to the Budjak, where they have settled on the crown lands. Their language is the Moldavian, a singular medley of a Sclavonian dialect with Latin and Italian; it is full of diphthongs, and has hence acquired a certain degree of richness and euphony. They profess the orthodox or Russo-Greek faith, and are a tall, handsome, slim race of men; the women on the whole have much beauty, surpass the men in industry, make their own and their husbands' and children's clothing, and are diligent at the distaff; they also manage all household concerns, for the Moldavian is so indolent that he prefers the roaming, sluggish life of a herdsman to any agricultural employment. He is sunk in ignorance, and at present has no means of improvement, as there is no village school in the whole country. The Russian part of the population is a far more active and industrious class of men; numbers of them have settled in the Budjak Steppes, where they employ themselves in fishing, rearing bees, and making cordage, sail-cloth, &c. The Greeks are principally established in the towns as merchants and dealers. The Russo-Greek is the predominant religion of the province; its ecclesiastical affairs are superintended by a bishop, who resides at Kisheneff. The farmer or peasant pays the landowner a portion of his produce, and twelve days' labour in the course of the year.

There is scarcely a single manufactory in all Bessarabia, unless such establishments as sixty-four tanneries, fifty-one candle manufactories, twenty-three houses for boiling soap, as many brandy distilleries, and three linen and woollen manufactories of no great extent, deserve to come under the designation. The situation of the country, with reference to the Turkish, Russian, and Austrian markets, and the facilities of communication which the Danube, Pruth, and Dniester afford, give it no inconsiderable advantages for the exportation of its produce; this consists of wines, principally sent to Russia, dried plums, ox-hides, sheep-skins, wool, wax and tallow, maize, fish, and salt. In the year 1828, their value amounted to 9560*l.* (208,596 roubles), forwarded by sea, and 232,077*l.* (5,063,480 roubles) by land, in all 241,637*l.*; on the other hand, the importations in the same year amounted to 43,007*l.*, viz. 10,124*l.* (220,896 roubles) by sea, and 32,878*l.* (717,332 roubles) by land. (Berghaus's *Annals*; Cannabich's *European Russia;* Hassel; Vsévoloysky, &c.)

BESSA'RION, JOHN, was born at Trebizond, on the south-east coast of the Euxine, A. D. 1389, or, according to Bandini, who has written his life (4to. Rome, 1777), A. D. 1395. The former time rests on an inscription written by himself and designed for his monument, which bears the date 'Anno salutis 1466, ætatis 77,' but the latter words are omitted in some copies. Having removed to Constantinople he devoted himself to study under George Chrysococces and other eminent teachers, and while yet quite young entered the strict monastic order of St. Basil. He passed twenty one years in a monastery in the Peloponnesus, where he studied under the philosopher George Gemistus Pletho, from whom he acquired that admiration for Plato which he retained to the end of his life. In 1438 was held the council of Ferrara, for the purpose of effecting a union of the Greek and Latin churches, and so great was the reputation of Bessarion for learning and talent, that he was selected by the emperor John Palæologus to accompany him as one of the conductors of the conference on the part of the Greeks, and before he set out was raised to the dignity of archbishop of Nicæa. Both at Ferrara and after the council had, on account of the plague, been removed to Florence, Bessarion earnestly exerted himself in promoting the union, which was agreed to in the year 1439. After the close of the council he returned to Constantinople, but finding himself an object of popular enmity on account of his conduct at Ferrara and Florence, and having in the end of the same year been raised to the cardinalate by Eugenius IV., he settled in Italy. Here he devoted himself to study, the patronage of learned men, and the collecting of books and manuscripts, which he afterwards, in the year 1468, presented to the Venetian senate, and which formed the basis of the celebrated library of St. Mark. Among his contemporaries and associates were Valla, Theodore Gaza, Philelphus, Argyropulus, Calderino, and George of Trebizond. He was raised by Nicholas V. to the archbishopric of Siponto. In 1449 that pontiff created him cardinal bishop of Sabina, and in the same year translated him to the see of Tusculum or Frascati. In 1463 Pius II. conferred on him the empty title of Patriarch of Constantinople.

In 1455, on the death of Nicholas V., it is thought that he would have been raised to the pontificate but for the intrigues of Cardinal Alain, who represented that it would be a deep disgrace to the Latin church if the holy see should be filled by a Greek. On the death of Paul II. in 1471 it is said that he would have been elected pope if he would have consented to purchase the support of Cardinal Orsini by an unjust promise. No credit is due to the story that his rejection was owing to the refusal of Nicholas Perot, his conclavist, to admit certain cardinals into his cell. In the reign of Nicholas V. Bessarion held for five years the office of legate at Bologna, the duties of which he discharged with much applause. He was also employed on several embassies, the last of which, undertaken for the purpose of reconciling Louis XI. of France and the Duke of Burgundy, is said to have occasioned his death through vexation at the insulting behaviour of the king of France. On his way back to Rome he died at Ravenna A. D. 1472. His works on various subjects are numerous, some of which have been published, and others exist only in manuscript. (See a catalogue in Niceron's 'Mémoires pour servir à l'Histoire des Hommes Illustres dans la République des Lettres.) The most celebrated are his Latin translation of the 'Memorabilia of Xenophon;' that of the 'Metaphysics of Aristotle;' and his treatise 'Contra Calumniatorem Platonis,' which is a controversial tract written against George of Trebizond, who had endeavoured to exalt Aristotle by decrying Plato. This tract has been three times published in 1469, and by Aldus in 1503 and 1510. Bessarion's character stands high both for talents and conduct, but his best claim to our esteem rests on his diligence in preserving the remains of Greek literature. As a collector of manuscripts he was indefatigable, and equally so in procuring their multiplication by transcription. A catalogue of those which he possessed, as well as of his printed books, may be found in Tomasini's *Bibliothecæ Venetæ*, &c., Utini, 1650.

The authorities for the events of his life are quoted by Bandini, and by Hody, 'De Græcis Illustribus,' &c. to whom the reader is referred for further information. See also the article in the *Biog. Univ.*

BESSIN, a district in the former province of Normandie in France, of which Bayeux was the capital. [See BAYEUX.]

BE'TA, a genus of plants belonging to the natural order *Chenopodeæ*, among which it is known by its having large succulent roots, and a green calyx united halfway to a hard rugged nut. The species are found in Europe, the north of Africa, and the western parts of Asia; four are cultivated as esculents, the others are mere weeds; we shall only occupy ourselves with the former.

1. *Beta vulgaris* (common beet) is said to be found in a wild state along the whole of the sea-coast of the Mediterranean, and in Egypt; it is however chiefly known as a plant cultivated in gardens, for its carrot-like sweet and tender roots. Several sorts are mentioned by writers on gardening, varying in the size, form, colour, and sweetness of their roots: of these however two are much more worth cultivating than the others, namely, the *small red* and *long yellow* varieties; they are the most delicate, the sweetest, and have the richest colour when served at table. The French call them the red and yellow beets of Castelnaudary, from a place where the races are preserved pure with extraordinary care. Beet-roots can only be obtained in perfection in a rich light sandy soil, through which they can readily penetrate: in stony or stiff situations the roots become forked, and are deprived of their succulence. The seeds are sown in drills or in beds, at the end of March or beginning of April, and are to be well covered with soil; the plants are to be thinned to the distance of a foot apart; in September the roots may be taken up, and should be packed in sand in some dry place out of the reach of frost. In this country beet is chiefly employed as an ingredient in salads, after having been boiled till it is tender; but in other countries it is usually eaten sliced in vinegar and oil, or mixed with slices of cold boiled onions.

2 *Beta altissima* (mangel wurzel) is a much larger and coarser plant than the common beet, from which it is principally known by its roots being marked internally with zones of red and pink or white. Its native country is unknown; by some it is reckoned a mere variety of the common beet, but this is scarcely probable, considering that it is permanently reproduced from seed; others state that it is a hybrid between the common and chard beet, our third sort, of which however there is neither proof nor probability. Mangel wurzel is an object of extensive cultivation for feeding cattle; its leaves afford a very nutritious food for all kinds of live stock, and the roots, from their extreme sweetness, are by many farmers considered the most valuable of all the agricultural plants upon which cattle are fed in winter. They however require to be preserved from frost, and are better adapted to warm climates and a light rich soil than to colder latitudes. In cultivating the mangel wurzel, it will be found advantageous to soak the seeds in water, till they are just beginning to germinate, and then to sow them, taking care that they are speedily covered in with soil; for, from the bony nature of the seeds, it will often happen that they will lie some weeks in the soil before they begin to grow, by which valuable time is lost, or that they will fail altogether; especially if the weather should be dry, as it often is at the time of sowing, which is the middle of May. Independently of their use for cattle, mangel wurzel roots have been extensively employed in the manufacture of sugar. They are still extensively employed in France in the manufacture of sugar; and an attempt has lately been made in Kent to use them for distillation. For these purposes the common red and white mangel wurzel will perhaps be found best suited in this country, in consequence of its hardiness, and the great weight per acre which it will afford; but the French have preferred a perfectly white kind, which is said to exceed the former in nutritive properties, in the proportion of two to one; they also grow a sort with white roots and a purple crown, and another white within, and yellow on the outside. The yellow field-beet, which has been a good deal cultivated in this country, is apparently a variety of *Beta vulgaris*, and is too unproductive in most situations to bear comparison with the others.

3. *Beta cycla* (chard-beet) is inferior to the two last in the size of its roots, but is remarkable for the thickness of the ribs of its leaves, which are white, yellow, green, orange coloured, or deep crimson, in different varieties. It is cultivated like the common beet, but the leaves only are used in soups, or their ribs are cut out and stewed like sea-kail. They have however an earthy taste, which it is not in the power of cookery wholly to remove, on which account they are little esteemed. The French call this species *Poirée à cardes;* it is said to have been introduced to France from Portugal; but its native station is unknown.

4. *Beta maritima* (sea-beet), unlike the three last, is a prostrate plant, with numerous entangled branches, and a tough woody root. It is found abundantly on many parts of the southern coast of England, and is a common European shore-plant, preferring a chalky soil. Its leaves are small, ovate, deep green, crenelled, rather sharp-pointed, flat, succulent, and placed on long stalks. Its flowers are green and arranged in spikes, each being subtended by a small leafy bract. It is a perennial, and one of the most valuable plants known for spinach; its leaves when dressed are extremely delicate and well-flavoured, and easily reduced into that pulpy substance which constitutes the great merit of good spinach. It thrives in a garden without any sort of care, and is rather a handsome plant when growing among rubbish, for its leaves are a particularly rich green, and not liable to be scorched by the sun, or to be injured much by insects. It is increased by seeds, which it yields in abundance.

In these plants, as in all others with succulent roots, the saccharine quality of the latter is most concentrated in winter. As soon as the leaves begin to grow in spring, the sugar gradually and very rapidly diminishes.

BETCHOUANA, or BETJUANA, is the general name of a nation, or race of people, consisting of many tribes, who inhabit the interior of Southern Africa, north of the Gariep, or Great Orange river, and between 23° and 29° E. long. A wide desert separates them to the westward from the Namaqua Hottentots, and from the Dammara Caffres, who live farther N.W. near the Atlantic. To the eastward a range of mountains, which runs parallel to the coast of the Indian Ocean, and at the distance of sixty or eighty miles from it separates the Betchouanas from the maritime Caffres of Dalagoa Bay, and from the dominions of King Tchaka, the chief of the Vatwahs, or Zoolas. To the south, they extend to between the 27th and 28th parallel, where they border on the Koranna Hottentots, who inhabit the northern bank of the Gariep, the Griquas, or Bastard Hottentots of Klaarwater, and the Bushesmen who roam along the upper or eastern course of the Gariep. The limits of the Betchouana to the N. and N.E. are not known. Most of the rivers of the Betchouana country, as yet known, such as the Moloppo, the Kuruman, &c., appear to be affluents of the Gariep river; but those of the Moorootzee flow towards the N.E., and they are supposed to be affluents of King George's river that runs into Dalagoa Bay. The country itself is a vast table-land stretching across the middle of the continent, and the ridge of mountains above mentioned divides the waters that run westward into the Gariep from those which flow by the Mapoota and English rivers into Dalagoa Bay. (See a letter from Captain Owen, R.N., who surveyed the coast of Dalagoa Bay, quoted by G. Thompson in his *Travels and Adventures in Southern Africa*, Lond. 1827.) The Betchouana are Caffres, and they resemble the southern Caffres, or the Amakosa and Amatymba tribes, who border on the colony of the Cape. They are copper coloured, and some are of a bronze hue, but in general they are not so swarthy as the southern Caffres; they are well made, have not unpleasant features, and are equally distinct in their appearance and habits from the Hottentots as from the negro tribes. Like the other Caffres, they practise circumcision, are polygamists, and have no form of worship. The Betchouana or Sichuana language, as it is called by some, seems to be spoken by all their tribes, and although different from the Amakosa or southern Caffre dialect, it appears to have considerable affinity to it. (See G. Thompson.) The Dammara, who are also a tribe of Caffres, are said to speak the Betchouana language. Lichtenstein (1805), Burchell (1812), the Rev. John Campbell (1813), and G. Thompson (1823), have given vocabularies of the Betchouana language. Its sounds are said to be full toned and soft, and without that unpleasant clattering of the Hottentot tongue.

The Betchouana tribe best known to us is that of the Machappee, or, according to Thompson, Machlapee, whose chief town, Lattakoo, or Letakoon, has been visited by the travellers above mentioned since the beginning of the present century. The country of the Machlapee lies north of that of the Griquas, where is the well-known missionary settlement of Klaarwater, north of the Great Orange river. About seventy miles from Klaarwater, northward, is a range of hills called Kamhanni. Having passed these, one enters the country of the Betchouana. The old town of Lattakoo, which was visited by Lichtenstein, Burchell, and Campbell, lay in a plain about fifty miles to the north-east of these hills, and in 24° 40 E. long., and 27° 10′ S. lat. But afterwards the people removed to a new site, five miles to the N.E. of old Lattakoo, on the further or north bank of the Lattakoo river. This is the Lattakoo visited by Thompson in 1823. Lattakoo is said to contain 1500 houses, and between 7000 and 8000 inhabitants. The houses are built in clusters, irregularly grouped, each cluster being under the authority of an elder or chief, subordinate to the king. The houses are circular and divided into several apartments; the partition walls are made of sticks, neatly plastered over with a composition of sandy clay and the fresh manure of cattle-pounds, and grass cut into small pieces, which appear to make a very tenacious kind of cement. The roof is conical, and runs up to a point; it is made of straw or reeds, and it projects over on every side, the eaves being supported at the height of four or five feet from the ground by posts made of the rough stems of trees, leaving between them and the outer wall of the house a sort of veranda. In the larger houses the roof covers a space of ground of about twenty-six feet in diameter. The house is situated in the middle of a much larger area or court, enclosed all round by a strong circular fence, from five to seven feet high, and two and a half feet thick at the bottom, gradually diminishing in thickness to about one foot at the top. This fence, which is made of straight twigs and small branches carefully interwoven, forms a close and firm defence. One doorway only, wide enough for a single person, leads into the court, and is closed at night by a rude wicker-door. A smaller house for servants and a horse-room are often found within the enclosure, detached from the family house. Much neatness and ingenuity are displayed in the building of these dwellings, which are kept remarkably clean, as well as the streets or spaces between the various houses. The task of building, enclosing, roofing, &c., devolves chiefly upon the women. The houses of the poor are made in the same form, only smaller; sometimes they consist of only a conical roof resting on the floor, without any opening for windows. All Betchouana towns are built after the same manner. Mateebe, the king of the Machlapee, some time previous to Thompson's visit, in 1823, had removed with one division of his tribe to the town of Kuruman about thirty-five miles S.W. of Lattakoo, leaving in the latter place a subordinate chief. Kuruman is stated by Thompson to contain from 8000 to 10,000 inhabitants, and is built in the same manner as Lattakoo. A missionary station was established at Kuruman when Thompson visited it, and the missionaries were kindly treated by Mateebe. The river Kuruman runs through the country in a S.W. direction, and joins the Gariep; but during the greater part of the year it is almost dry, and its water loses itself in the sands, like most of the streams in the Betchouana country. In June, 1823, Lattakoo was invaded by the Mantatees, a roving tribe, or rather collection of fugitives coming from the eastward, who having been driven two years before by Tchaka from their own country near the banks of the Mapoota river, crossed the ridge of mountains where the Gariep has its sources, and threw themselves upon the Betchouana country. They took first a northern direction, and attacked the Moorootzee, a numerous Betchouana tribe, about 200 miles N.E. of Lattakoo, and sacked and burnt their capital Kurrechane, in 25° 20′ S. lat., and 27° E. long. Kurrechane is said to have been a much larger and more populous town than Lattakoo. The Mantatees after this attacked the Vankeetz, called also Nuaketsee by Burchell and others, a powerful and warlike tribe, W. of the Moorootzee, and whose capital Melita is placed about 25° 10′ S. lat., and 26° E. long. But Makabba, the king of the Vankeetz, fell by surprise upon the Mantatees and drove them away from his territory. They then turned to the S.W., fell upon another Betchouana tribe called Barolongs, who live near the banks of the Mashow river. (See the map which accompanies Thompson's Travels; and the map of South Africa in John Arrowsmith's new Atlas, London, 1835, which is the most distinct, and appears the most accurate of any yet made of this country.)

After devastating the country of the Barolongs, the Mantatees fell upon their next neighbours the Machlapee, who fled in terror from Lattakoo. Thompson was at Kuruman at the time; he rode to Lattakoo and saw the host of the Mantatees advance. After plundering Lattakoo, the invaders were attacked by a small party of Griquas mounted and armed with muskets, who, having come to the assistance of their neighbours the Machlapee, fell upon the Mantatees, killed a great number of their best warriors, and so terrified them by their fire-arms, that they retreated eastward again, after setting fire to Lattakoo. (See an interesting account of this singular campaign in Thompson's book.) In consequence of these events, the Betchouana and Mateebe, and his tribe in particular, seem to have been impressed with a higher sense of European superiority. Towards the end of 1823, Mateebe sent his son Peelu, and one of his subordinate chiefs, Teysho, who seems to have been an intelligent old man, to Cape Town, in company with Mr. Moffat, one of the missionaries from Kuruman. The two Betchouana appear to have been much struck by what they saw during their visit.

The Betchouana wear a covering round the middle, and occasionally cloaks made of skins neatly sewn together. They wear caps of the same materials. The women wear several aprons one above the other, bracelets of copper and beads. The Betchouana work copper and iron; they make spades, awls, bodkins, knives, spears, &c. The most skilful smiths are said to be at Melita in the Vankeetz tribe: the Lattakoo people are very inferior to them in handicraft. The Moorootzee are also very skilful in several kinds of handicraft. It would appear that arts, industry, and social order, are found to increase progressively as we advance north-eastward beyond the Machlapee country. (See W. D. Cooley's *Memoir* in the *Journal of the Geographical Society*, vol. iii.) They get the iron and copper from some distant tribes to the northward. They sow millet and beans, and other vegetables. They also dry and preserve several kinds of fruit; but their cattle constitutes their chief property.

The Betchouana seem to have remained for a long time past stationary in their half-civilized condition. They have an idea of a Supreme Being, but seem to have no distinct notion of his attributes; and they confound the principle of good with the evil principle. They believe in sorcery and wear amulets. With regard to their moral character, Lichtenstein gave rather a favourable view of it: the judgments of Burchell, Campbell (*First Journey*, 1813), and Thompson, are more severe. These last, however, refer chiefly to the Machlapee or Letakoon people, who are now known not to be the most favourable specimen of the

Betchouana. The Vankeetz also appear to bear the character of being treacherous; but Campbell, in his *Second Journey*, 1820, visited Kurrechane, the capital of the Moorootzee, whom he describes more favourably. With regard to industry, the Moorootzee seem far superior to the more southern and western tribes. They cultivate tobacco and the sugar-cane; they paint their houses; they smelt and alloy the copper, and make wire and chains of it; they make wooden bowls, spoons, &c.; and they build walls of masonry. The Machlapee are orderly and decent in their outward behaviour, but they are addicted to lying and thieving, and their word cannot be depended upon. Murder, although not a very common occurrence, does not appear to be looked upon as criminal. Their want of humanity was exhibited after the defeat of the Mantatees, when they butchered the women and children that the invaders had left behind. Before the action they showed a want of courage, and had it not been for the assistance of the Griquas, the Mantatees would have found no difficulty in overrunning the whole country. The Machlapee, upon the whole, seem to be inferior in bravery, honesty, and humanity to the southern Caffres, though superior to them in ingenuity and industry. Their women appear to be modest, mild, and domestic; but they are treated harshly, and are looked upon as inferior beings: most of the hard labour at home and in the fields falls upon them. The men go often out upon great hunting parties, and sometimes also in marauding parties against their neighbours. There is, however, no slave trade among the Betchouana, but the prisoners they make are kept as domestic servants. Both men and women rub their bodies with grease mixed up with a red mineral powder, which gives their skin a shining and glittering appearance.

Each tribe of the Betchouana is under the rule of an hereditary king or chief, but his authority over the subordinate chiefs seems to be rather loose. In cases of emergency, such as the Mantatee invasion, they convene an assembly of all the warriors, when speeches are delivered in succession by the chiefs: specimens of their oratory, which is chiefly remarkable for its bombast, are to be found in Thompson's account. These assemblies are called Peetsho.

The greater part of the Betchouana country, most of whose tribes are known to us only by name, lies east and north-east of the Machlapee or Lattakoo territory, and between that and the sea-coast. The best point from which to explore this unknown tract seems to be the coast of Dalagoa Bay, from which the Moorootzee country lies about 250 miles distant west by north, not one-fourth of the distance by land from Cape Town. The Vankeetz are next to the Moorootzee to the westward. The intermediate space between the Moorootzee and the mountains near the coast is occupied by the Morremootzans, whose country consists chiefly of plains. It is watered by the river Waritzi, which flows northward, and is supposed to fall into the Moriqua, the river of the Moorootzee. An expedition for the object of exploring the country west of Dalagoa Bay has been sent out lately from the Cape, but we have as yet (1835) no accounts of its success. (See *Report of the Council of the Geographical Society* for 1834.)

Beyond the Moorootzee to the north-east are the Makween, a numerous and powerful nation, whose name is known to all the southern tribes, even to the Amakosa on the frontiers of the Cape colony. It is from the Makween that the other tribes obtain by exchange much of the copper and iron which they afterwards manufacture, as well as the beads which serve them as money, and which last the Makween obtain from the Mahalesely and the Mateebelay, two other numerous tribes, who extend north-east towards Inhamban, and who trade with the Portuguese of the coast of Sofala. These two last tribes are described by the Moorootzee as being of a brown complexion, having long hair, wearing clothes, and riding on elephants. They also trade northward with Zumbo on the Zambese river. (See Cooley's *Memoir.*)

BETEL, the leaf of an intoxicating kind of pepper. [See PIPER.]

BETH. [See BEIT.]

BETHANIA (Βηθανία), according to Simon (Onomasticum, *Novi Testamenti*, 42), בֵּית עֲנִיָּה, 'the house or the place of lowliness,' so called from its low situation, which various travellers have observed. Lightfoot, Reland, and others, derive it from בֵּית הִינֵי, 'the house or place of dates,' from the Talmudic אהינה, 'unripe date.' (Othon. Lex. Rabb. 98.) Many names of places in the Holy Land are compounded with the word בית, 'house,' as in German, Mühlhausen, Nordhausen, Schaffhausen; and in English names, such as Limehouse. Compare the German 'heim' in Hochheim, Manheim, Hildesheim, corresponding to the English 'ham' in Clapham, Egham, Tottenham: the termination *heim* is equivalent to *home.*

Bethania was fifteen stadia south-east of Jerusalem, at the foot of Mount Olivet. On the site of Bethania there is now a village inhabited by Arabs, where the house of Simon the leper and the grave of Lazarus are shown. (Matt. xxi. 17, xxvi. 6; Mark xi. 1, 11, 12; Luke xix. 29, xxiv. 50; John xi.; Pococke, *Travels;* Richt. *Wallfahrt.* 35; Korle, *Reise*, 129; Troilo, *Reise*, 373.)

The oldest MSS. read in John i. 28, Bethania, instead of Bethabara. This Bethania was another place on the east side of the Jordan. Possin (*Spicil. Evang.* 32) has observed that the names Bethabara and Bethania have a similar signification. The name Bethbara, בית ברה (Judges vii. 24), seems to be contracted or shortened from בית עברה, *domus transitus*, 'the house of passing over;' to this the meaning of the name Bethania or Bethany is nearly allied, בית אניה, 'the house of the ship,' *i. e.* the house of the ferry-boat. (Pococke; Paulus, *Comment.* iv. 129; Paulus, *Sammlung*, i. 287; Bolten, *Comment. to John* i. 28; Kühnöl. *Comment.* iii. 151; Lücke, *Comment. to John* i. 28; *Neues Kritisches Journ.* iii. 383; Crome, *Beiträge*, i. 82, &c.; Winer, *Realwörterbuch.*)

BETHESDA, Βηθεσδά (Eusebius writes Βηζηθά) בית הסדא *house of charity*, was the name of a tank or pool, surrounded with five halls or porches near the sheep-gate at Jerusalem. Tradition now points out this tank or pool near the gate of St. Stephen, at the east side of the mountain on which the temple stood, where there is an empty tank 120 feet long, and 40 feet broad, walled round with stones, but without water. Some have endeavoured to account for the healing power of the water contained in this tank by its mineral properties; others (as Theophylactus in his Commentary, and Richter, *de Balneo Animali* in *Dissertationibus Med.* Gott. 1775, 4to. p. 107, &c.) by the quantity of blood which ran into it from the sacrifices. Richter says that the healing effect of this water, especially in nervous disorders, could only last while it was quite fresh. This he mentions in reference to John v. 3, 4: 'In these porches lay a great number of impotent folk, of blind, halt, withered, waiting for the moving of the water. For an angel went down at a certain season into the pool and troubled the water: whosoever then first after the troubling of the water stepped in was made whole of whatsoever disease he had.' Some have ascribed the red colour of this water to the ochre which it contained, others to the fresh blood of the animals offered in sacrifices. Eusebius describes the water in the pool of Bethesda as remarkably red (παραδόξως πεφοινιγμένον.) (See Hottinger, *de Piscina Bethesdæ*, Tigur, 1705. 4.; E. A. Schulze, *In den Berlinischen vermischten Abhandlungen und Urtheilen.* II. *Medicinisch-hermeneutisch-Untersuchungen*, p. 146, &c.; Winer's *Wörterbuch;* Gesenii *Lexicon.*)

BETHLEHEM-JUDAH, Ephrath, or Ephratah, so called to distinguish it from Bethlehem of Zebulon (Jos. xix. 15), stands on a rising ground about six miles south-east of Jerusalem. It never was a town of large size. The name בֵּית לֶחֶם, Beth-lehem, *house of bread*, indicates probably the fertility of the soil. The Septuagint write Βηθλεέμ, and Josephus Βήθλεμα and Βηθλέεμα. The earlier name of Bethlehem was אֶפְרָתָה, Ephrathah (Gen. xxxv. 16, 19; xlviii. 7.): it was fortified by Rehoboam, who built cities for defence in Judah, even Bethlehem, &c. (2 Chron. xi. 5, 6.) Bethlehem was the birth-place of David, and also of Jesus Christ. The Emperor Hadrian is said to have instituted rites here to Adonis. The pious Empress Helena built a handsome church in the form of a cross, over the grotto in which our Saviour is said to have been born, which remains to this day. This church was much embellished by Constantine, and the interior adorned with mosaic work. The body of the church is supported by forty white marble Corinthian columns in four rows: connected with the building are Latin, Greek, and Armenian convents. The right of guarding the sacred cradle (pointed out as a *white marble* trough placed in a grotto cut out of the rock) has, it appears, often changed hands from the Greeks to the Latins, and is a source of much jealousy between the monks of the two creeds, though both parties willingly join in its defence when threatened by the Mohammedans. At the time of Ali Bey's visit there were only about twenty monks in the Latin convent. The whole building is enclosed by walls of great strength with only one door, and has the appearance of a fortress.

The population of Bethlehem is given by Ali Bey at 500 families; Volney, about 1785, estimated 600 men capable of bearing arms; and Parsons reckons 1500 Catholics, 1000 Greeks, and a few Armenians and Turks. The village is beautifully situated; the country around is richly covered with olives, vines, and fig-trees, and a small rivulet runs through the valley. Browne mentions the remains of a stone channel, which formerly conveyed the water from Solomon's pools to Jerusalem.

There are shown the house of Simeon, the tomb of Rachel, the wells for which David longed, the place of the Nativity, the fountains of Solomon, the cave in which David cut off Saul's skirt, the wilderness of St. John, and the house where Joseph was warned to flee into Egypt from the wrath of Herod, who committed the atrocious massacre of all the young children of Bethlehem in his anxiety to destroy one who he feared would supplant him in his throne. The village of the shepherds consists of a number of caves still used as a retreat for cattle and shepherds at night. The village retains the name of Beit-el-lahm. Pococke mentions a singular method of baking with hot-stones peculiar to this place. (Mariti's *Hasselquist;* Pococke's, Ali Bey's, Browne's, Volney's, *Travels in Syria;* Justin. *Tryph.* c. 78; Hieron. *Ep.* 24, ad Marcell.; Euseb. *Dem. Ev.* vii. 4; *Vit. Const.* iii. 41; Origen, *Op.* i. 567; Epiph. *Haer.* 51, &c.; Phocas, c. 27; *Protevangel. Jac.* c. 18, in *Fabricii Codex Apocryph.* i. 105; Ernesti *Opuscula Theologica*, 595, seq.; Spanhem, *De Præsepi Domini Nostri*, Berol. 1695, 12mo.; Wernsdorf, *De Bethlehemo apud Hieronymum*, Viteb. 1769, 4to.; Verpoorten, *Fasc. Dissertationum*, Coburg, 1739, 8vo.; Abulfeda, *Syr.* 88; Relandi, *Pal.* 643, &c.)

BETHLEHEM. There are several small towns and villages of this name in the United States. Among the most important is the Moravian settlement in the county of Northampton, State of Pennsylvania. It is pleasantly situated on the river Lehigh, a branch of the Delaware, fifty miles N. by W. from Philadelphia. The buildings, which, like all others within the valley, are of limestone, have the uniform appearance, and are laid out with the regularity, by which the settlements of the brethren are everywhere distinguished. The inhabitants are all Moravians, and have here a bishop; and as they are mostly of German extraction, the German language is more in use than the English. English, however, is taught in the schools, and the religious services are performed in both languages. Besides the church, there are three large public buildings in the place; namely, the house for single brethren, that for single sisters, and that for such widows as are unprovided with a house of their own. Connected with the houses of the single brethren and sisters respectively, are academies for boys and girls under the immediate care of competent teachers, and under the general superintendence of the minister of the place, and the elders and wardens of the fraternity. In the boys' school instruction is given in the Latin, English, and German languages, and in arithmetic, music, drawing, &c.; the girls are taught the usual branches of knowledge, with the English and German languages, history, geography, music, and every thing that is usually taught in a female boarding-school, with the exception of dancing. These schools, particularly that for girls, have acquired a very high repute; and as they do not offer their advantages exclusively to Moravians, persons of different religious persuasions resident in Philadelphia, New York, and other towns in the neighbouring states, often send their children to Bethlehem for education. (Morse's *American Geography;* Lieut. Francis Hall's *Travels in Canada and the United States*, &c.)

BETHPHAGE, בֵּית פַּגָּא (pronounced Bethfăggé), *house of figs*, is a village two miles from Jerusalem, on the Mount of Olives, whence Christ obtained the ass on which he rode into Jerusalem; a custom which was and perhaps is kept up at present by the Latin monks of Jerusalem who attend to the city their superior, clothed in his official habits and mounted on an ass, strewing palm-leaves and their garments before him. (Pococke, &c.)

According to Rauwolf (p. 439) there were in his time (A.D. 1574) fig-trees at Bethphage. According to Origenes ad Malthæum, Bethphage was a place of the priests, or a sort of ecclesiastical community. (See Huet in Origenis *Opera*, iii. p. 743.)

BETHUNE, a town in France in the department of Pas de Calais. It is on the little river Lawe or Lave (otherwise Brette or Bietre), a feeder of the Lys; 116 miles N. by E. of Paris in a straight line; or 125 miles by the road through Peronne and Arras; in 50° 31′ N. lat. and 2° 38′ E. long from Greenwich.

This town is not of very remote antiquity, having been scarcely known before the beginning of the eleventh century. At that period it was a lordship, the lords of which bore also the title of *Avoués de Saint-Wast d'Arras;* and it continued in the same family till the middle of the thirteenth century, when it came by marriage into the hands first of the counts of Flanders, and afterwards of the duke of Burgundy, Philippe le Hardi (Philip the Brave) son of Jean (John) II. king of France. This duke exchanged it for another possession with the count of Namur, but Philippe le Bon (Philip the Good) duke of Burgundy, grandson of Philippe le Hardi, acquired it again by purchase. The lordship was united to the county of Artois by Charles son of Philippe le Bon, and with that county fell by conquest into the hands of Louis XI. of France, and afterwards by treaty came to the House of Austria, the Spanish branch of which inherited it. In 1645, in the reign of Louis XIV., Bethune was taken by the French, under Gaston duke of Orléans, the king's uncle, and with the rest of Artois was ceded to them by the treaty of the Pyrenees in 1659. In 1710 it was taken by the allies under the duke of Marlborough and Prince Eugene, but restored to France at the peace of Utrecht. Previous to its last capture the fortifications of Bethune had been augmented and strengthened by Vauban. (Expilly, *Dictionnaire des Gaules*.)

The town is of a form nearly triangular, the castle, a very irregular structure, occupying one of the angles. We have no account of the present state or appearance of the town; Expilly, in the middle of the last century, describes it as ill built and ill paved; but the *place* or public square is large, regular, and handsome. Before the Revolution there were several religious houses, a collegiate church, and two parish churches. The religious houses were of Capuchins and Recollets; an establishment of the Jesuits, who had a *college* under their direction; and four nunneries, viz. two of Franciscans, one of Annunciate nuns, and one of 'Les Filles de la Paix.' There were also an hospital, and an endowed school for poor girls.

The trade of Bethune is benefited by the navigation of the river Lawe, which navigation commences here and continues till the junction of the Lawe with the Lys. There are tan-yards, breweries, flour and oil mills; earthenware is also made, and the cheese of the district is in high repute. Linen cloth is also a very considerable article of trade. The population in 1832 amounted to 6889. It has rather diminished within the last thirty years.

Bethune is the capital of an arrondissement which contains 346 square miles or 221,440 acres, and is divided into 8 cantons and 144 communes: population of the arrondissement in 1832, 131,849.

BETHY'LUS (Zoology), a genus formed by Cuvier, and placed by him under his second order of birds (*Les Passereaux*), in the first tribe (*Dentirostres*), and in the first family (*Laniadæ*). He says that there is but one species known (*Lanius Leverianus* of Shaw *Lanius picatus* of Latham), and that the great shrike (*Lanius corvinus* of Shaw) approaches it, though *L. corvinus* has the bill more compressed.

Vieillot has changed the generic name to *Cissopis*, and Illiger makes it a *Tangara*.

The genus is thus characterized by Vieillot; bill short, robust, swollen, a little compressed towards the end; upper mandible notched and curved at the point; gape ciliated; the third and fourth quills longest; outer toes united at their base.

Le Vaillant has figured this bird (pl. 60) under the name of *Pie Pie-greiche.* White and black are the only colours of its plumage, distributed like those of the magpie, which it is said to resemble in miniature in Guiana and Brazil, where it is a native.

BETHY'LUS, in entomology, a genus of hymenopterous insects of the family Proctotrupidæ: its principal distinctive characters are, antennæ geniculated, thirteen-jointed in both sexes; the head is depressed and the prothorax very elongate and almost triangular. The wings have only one large marginal cell, not closed; abdomen conical, legs short, femora thick.

These little four-winged flies, which are remarkable for their large depressed heads, are not very unlike ants in their appearance, and are found in flowers and sometimes on the leaves of shrubs, to which they resort in search of small caterpillars, which they store up in cells to nourish their future progeny. The principal haunts of these insects are dry, sandy situations.

Mr. Haliday has given an interesting account of a species of this genus in the seventh number of the *Entomological Magazine.*

BETLIS. [See BEDLIS.]

BETO'NICA, or **BETONY**, a suppressed genus of herbaceous plants, belonging to the natural order *Labiatæ*. [See STACHYS.]

BETROTHMENT. We sometimes hear of parties being *betrothed* to each other, which means that each has pledged his or her *troth* or *truth* to the other, to enter at some convenient time, fixed or undetermined, into the state of matrimony. It now has seldom any other meaning than that the parties have engaged themselves privately, sometimes, though it is presumed very rarely, in the presence of one or more friends who might, if necessity of doing so arose, bear testimony to such an engagement having been entered into. Even the rustic ceremonies which heretofore were in use to give some kind of formality to such contracts seem almost to have fallen into entire disuse. In antient times, however, there were engagements of this kind of a very formal nature, and they were not thought unworthy the notice of the great legislators of antiquity. In the laws of Moses there are certain provisions respecting the state of the virgin who is betrothed. In the Roman law, the 'sponsalia,' or betrothment, is defined to be a 'promise of a future marriage.' It could take place after the parties were seven years of age. There was no fixed time after betrothment at which marriage necessarily followed, but it might for various reasons be deferred for several years. The sponsalia might be made without the two parties being present at the ceremony. (See *Digest*. xxiii. tit. i.)

The canonists speak of *betrothing* and of *marrying*, describing the former as being sponsalia, or espousals, with the *verba de futuro*, the latter with the *verba de præsenti*. In England, there is no doubt that formal engagements of this kind were usual down to the time of the Reformation. One class of the documents which have descended in families who have been careful in the preservation of their antient evidences, are marriage-contracts, which are generally between parents, and set out with stating that a marriage shall be solemnized between certain parties when they attain to a certain age, or at some distant period, as after six months or a year; and amongst the terms of the contract it is not unusual to find stipulations respecting the apparel of the future bride, and the cost of the entertainment which is to be provided on the occasion. When these contracts were entered into by the parents, there is reason to believe that the younger parties solemnly plighted their troth to each other.

The late Mr. Francis Douce, who was very learned in all matters relating to the popular customs of our own and other nations, describes the ceremony of betrothment (*Illustrations of Shakspeare and of Antient Manners*, vol. i. p. 108) as having consisted in 'the interchangement of rings—the kiss—the joining of hands; to which is to be added the testimony of witnesses.' In France, where the ceremony is known by the name of *fiançailles*, the presence of the curé, or of a priest commissioned by him, was essential to the completeness of the contract. In England, such contracts were brought under the cognizance of the ecclesiastical law. Complaints are made by a writer about the time of the Reformation, cited in Ellis's edition of Brand's *Popular Antiquities*, that certain superstitious ceremonies had become connected with these engagements; but Mr. Douce was unable to find in any of the antient rituals of the church any prescribed form in which this kind of espousals were to be celebrated. The church, however, undertook to punish the violation of the contract. Whoever, after betrothment, refused to proceed to matrimony, *in facie ecclesiæ*, was liable to excommunication till relieved by public penance. This was taken away by act 26 Geo. II. c. 33, and the aggrieved party was left to seek his remedy by an action at common law for breach of promise of marriage. The church also declared that no kind of matrimonial engagement could be entered into by infants under seven years of age; and that from seven to twelve, and in the case of males to fourteen, they might betroth themselves, but not be contracted in matrimony. Further, if any betrothment at all took place, it was to be done openly, and this the priests were instructed to urge upon the people as of importance.

Bishop Sparrow (*Rationale on the Common Prayer*, p. 203) regards the marriage service of the Church of England as containing in it both the *verba de futuro* and the *verba de præsenti*, or as being in fact both a betrothment and a marriage. The first he finds in the questions, '*Wilt* thou take,' &c., and the answers, 'I *will*,'—attributing to the word *will*, perhaps erroneously, the sense of *intention* rather than of *resolution*. The words of contract which follow are the *verba de præsenti*.

The northern nations, including the English and the Scotch, called this ceremony by the expressive term, *hand-fasting*, or *hand-fastning*. In Germany the parties are called respectively 'bride' and 'bridegroom,' 'braut' and 'bräutigam,' from the time of the betrothment (verlobung) *until* the marriage, when these designations cease.

BETTERTON, THOMAS. This celebrated actor was born in August, 1635, in Tothill-street, Westminster, his father being at that time under-cook to King Charles I. Evincing early a love of literature, it was originally the intention of his parents to educate him for one of the liberal professions, but the breaking out of the civil wars frustrating this design, the boy was at his own request apprenticed to a bookseller named Rhodes, at the sign of the Bible, Charing Cross. In 1659 Rhodes, who had been wardrobe-keeper at the theatre in Blackfriars before the troubles, obtained a license for a company of players to act at the Cock-pit in Drury-lane, and here young Betterton commenced his career as an actor at the age of twenty-four, performing with the greatest success in several of Beaumont and Fletcher's plays, then most in fashion.

In 1662 he was engaged by Sir William Davenant, and appeared on the opening of the theatre in Lincoln's Inn Fields in Sir William's new play the 'Siege of Rhodes. His performance of Hamlet about this time is said by Downs to have raised his reputation to the highest pitch. He may be said to have received traditionally, through Sir William Davenant, the instructions of Shakspeare himself for the representation of this character. Cibber, Addison, and the author of 'A Lick at the Laureat,' all concur in their admiration of him in this part. The last particularizes the scene with the ghost, in which he says Betterton's countenance, naturally ruddy and sanguine, would turn, with the violent emotions of amazement and horror, 'as pale as his neck-cloth.' He became so much in favour with Charles II. that Cibber asserts he went over to Paris at his Majesty's especial command to study the French stage, and introduce from it whatever he thought would improve our own, and that it is to him we are indebted for moving scenery, although some writers ascribe its introduction to Sir William Davenant.

In 1670 he married an actress of the name of Saunderson, a most amiable woman, who ranked as high among the female, as her husband among the male performers. Her Lady Macbeth was considered one of the most admirable representations on the stage. So great was the estimation in which they were both held, that in 1675, on the performance of Crowne's pastoral, called 'Calisto, or the Chaste Nymph,' by the Princesses Mary and Anne, the Duke of Monmouth and other persons of distinction, Mr. and Mrs. Betterton were employed to instruct the royal and noble amateurs during the rehearsals.

In 1692 Betterton had the misfortune to lose all his little savings (which, though his salary is said never to have exceeded 4*l.* per week, had amounted to 2000*l.*) in a commercial speculation. The influence of the Earl of Dorset obtained for him shortly afterwards the royal license for a new theatre, which he was speedily enabled, by the voluntary subscriptions of many persons of quality, to erect within the walls of the Tennis Court, Lincoln's Inn Fields. He opened it, April 30th, 1695, with Congreve's comedy of 'Love for Love,' which was very successful, but after a few years, the profits arising from the theatre proving very insignificant, and Mr. Betterton growing very infirm and suffering continually from the gout, he retired at once from management and the stage. The narrowness of his circumstances being known to the public, it was determined to give him a benefit, and on Thursday the 6th of April, 1709 (see *The Tatler*, No. I.), the comedy of 'Love for Love' was performed for that purpose, Betterton himself, though nearly seventy-four, sustaining the youthful part of Valentine. The celebrated performers Mr. Dogget, Mrs. Barry and Mrs. Bracegirdle, who had quitted the stage some time previously, acted for him on this occasion. Congreve wrote a prologue, and Rowe an epilogue (printed in his works), which latter was spoken by Mrs. Barry, who, with Mrs. Bracegirdle, supported 'Old Thomas,' as Betterton is called in it, while applauses were showered upon him by an audience almost as numerous behind, as it was before the curtain. The profits of the night are said to have amounted to 500*l*. In September, Betterton appeared again in Hamlet, a particular notice of which performance is given in the 'Tatler,' No. 71; and Mr. Owen M'Swinny, then manager of the Opera House in the Haymarket, prevailed on him to perform occasionally during the following winter. On Thursday, the 13th of April, 1710, he took another benefit, an invitation to which was kindly published in the 'Tatler' of Tuesday the 11th, No. 157. On this occasion he enacted his celebrated part of Melantius in the 'Maid's Tragedy.' The event, however, proved fatal, for having been suddenly attacked by the gout, in order to prevent disappointment he made use of some outward applications, which reduced the swelling and enabled him to walk on the stage with one foot in a slipper; but the violence of the remedy drove the distemper into his head, which a few days afterwards terminated his existence in the seventy-fifth year of his age. He was buried on Tuesday, May 2nd, 1710, in the cloisters of Westminster, with much ceremony, according to the 'Tatler' for Thursday, May 4th, No. 167. 'Such an actor as Mr. Betterton,' says the essayist, 'ought to be recorded with the same respect as Roscius among the Romans.' Cibber says, 'He was an actor as Shakspeare was an author, both without competitors, formed for the mutual assistance and illustration of each other's genius.' As a man he is said to have been modest, polite, generous, benevolent, of a cheerful temper, with a pious reliance upon the dispensations of Providence. Dryden mentions his judgment honourably in his preface to 'Don Sebastian,' and Rowe acknowledges his obligations to him in his 'Life of Shakspeare,' Betterton having made a journey into Warwickshire expressly to obtain information. Pope admired him exceedingly, and painted his portrait in oil, which is said to be still preserved at the Earl of Mansfield's, Caen Wood. The following minute and curious description of his person towards the close of his life, is given by Anthony Aston, in a pamphlet, entitled 'A brief Supplement to Colley Cibber, Esq., his Lives of the late famous Actors and Actresses,' 8vo.:—

'Mr. Betterton, although a superlative good actor, laboured under an ill figure, being clumsily made, having a great head, a short thick neck, stooped in the shoulders, and had fat short arms, which he rarely lifted higher than his stomach. His left hand frequently lodged in his breast, between his coat and waistcoat, while with his right he prepared his speech; his actions were few but just; he had little eyes and a broad face, a little pock-fretten, a corpulent body, and thick legs with large feet; he was better to meet than to follow, for his aspect was serious, venerable, and majestic, in his latter time a little paralytic; his voice was low and grumbling, yet he could tune it by an artful climax, which enforced universal attention, even from the fops and orange-girls; he was incapable of dancing, even in a country-dance, as was Mrs. Barry, but their good qualities were more than equal to their deficiencies.'

Mr. Betterton wrote and altered several dramatic pieces (see *Biograph. Dram.*), but none of them have kept possession of the stage. Queen Anne settled a pension upon his widow, who survived him only a year and a half: grief for the loss of her husband deprived her of reason.

(Colley Cibber's *Lives and Apology; Companion to the Play-house; Biograph. Dram.;* Sir Richard Steele and Addison in *The Tatler;* Galt's *Lives of the Actors, &c.*)

BETTINELLI, SAVERIO, was born at Mantua in 1718, and studied at Bologna, where he entered the order of the Jesuits in 1736. He was afterwards sent to Brescia, and there became acquainted with Mazzuchelli, Duranti, Cardinal Quirini, and other learned men, whose conversation encouraged him in his literary pursuits. In 1744 he returned to Bologna, where he frequented the society of Manfredi, Zanotti, Ghedini, and other distinguished men of that city. In 1748 he was sent to Venice, where he became likewise intimate with the literary men of that place, who used to assemble frequently in his cell. Bettinelli wrote a little poem in remembrance of them, which he styled 'Parnaso Veneto.' In 1751 he was sent to Parma, as director of the studies in the college of the nobility in that city. He there conceived the idea of his principal work, on the revival of literature in Italy in the eleventh century, which, however, he did not complete for many years after. In 1755 he travelled through part of Germany to Strasburg and Nancy, as tutor to the two sons of Prince Hohenlohe. Towards the end of 1757 he accompanied the princess of Parma to Paris; he afterwards visited Normandy, and then went to the court of King Stanislaus at Nancy, who was a patron of literary men, and who charged Bettinelli with a commission for Voltaire, relative to half a million of francs which Voltaire intended to employ in Lorraine. Voltaire was then living at the Delices, a country-seat near Geneva, from whence he soon after removed to Ferney. He received Bettinelli with great kindness, and afterwards occasionally corresponded with him. One of Voltaire's letters to Bettinelli, dated March, 1760, which is characteristic of the writer, was published for the first time in Ugoni's biography of Bettinelli. In this letter Voltaire flatters Bettinelli, professes his respect for the Jesuits, speaks highly of England, abuses in coarse terms the clergy of Geneva, praises the king of Prussia, pities the fallen state of France, and all this in his usual jocular, satirical, rambling style, sneering at, and displaying his wit upon, every subject, however serious.

Bettinelli returned to Parma in 1759. In the same year he went to Verona, where he remained till 1767, spending a great part of his time in a pleasant country house belonging to the Jesuits near Verona. He there wrote his 'Risorgimento d'Italia negli Studj, nelle Arti e nei Costumi dopo il Mille,' which he published in 1773, just after the suppression of the order of Jesuits. On his return to his native Mantua, he published, in 1780, an edition of his various works in eight vols. 8vo. In 1796 the French invasion drove Bettinelli away from Mantua, and he took refuge at Verona, where he became acquainted with Ippolito Pindemonte. Bettinelli returned to Mantua after that place had surrendered to the French, and resumed his literary occupations, notwithstanding his advanced age of fourscore. Bonaparte made Bettinelli a knight of the Iron Crown, and a member of the National Institute. Bettinelli died at Mantua in September, 1808, being past ninety years of age. His life is chiefly remarkable on account of his having been intimate with several successive generations of learned men, and his forming a connecting link between the Italian literature of the eighteenth century and that of the nineteenth.

Bettinelli's 'Risorgimento' is the only work by which his literary reputation is now sustained. The subject is very interesting, and he was the first to treat it in a methodical and attractive manner. His plan is well distributed, and the spirit of his remarks is generally liberal. He begins by giving a sketch of the low state to which science and literature had fallen during the ninth and tenth centuries, which form the darkest period in the history of Italy. He then traces the dawn of their revival during the eleventh and twelfth centuries, and he passes in review the men who cultivated various branches of learning, especially theology and jurisprudence, most of whom are now forgotten. In the thirteenth century the earliest writers in the Italian language make their appearance, and early in the following century we find that language emerging at once into all the vigour and refinement of full maturity. Bettinelli investigates with much erudition this singularly rapid progress of the language of Italy. He then follows the brilliant course of Italian literature and science through the fourteenth century, thus leading the reader through the first period of modern learning and carrying him towards the age of the Medici, which constitutes a second and distinct epoch. In the second part of his work he treats of the fine arts, of the progress of industry, of commerce, of wealth, and of manners and habits during the same period. Bettinelli made a good use of the immense stores relating to the erudition of the middle ages, which Muratori has laboriously collected in his works. The 'Risorgimento' was reprinted at Milan in four vols. 12mo. 1819-20. Among Bettinelli's other works we may mention 'L'Entusiasmo,' which is a treatise on the nature and character of enthusiasm, especially with respect to the fine arts; 'Lettere Virgiliane,' in which the author shows a great deficiency of taste and critical judgment, accompanied by much flippancy and dogmatism, especially where he speaks of Dante in contemptuous terms. Gasparo Gozzi replied to Bettinelli in his 'Difesa di Dante.' Bettinelli, however, persisted in his judgment, which he repeated when eighty-two years of age in his 'Dissertazione Academica sopra Dante,' in which, among other things, he elevates Bembo and Della Casa above Dante in poetical merit. In consequence of this strange perversity of taste bordering on barbarism, the wits of Verona nicknamed the Rev. Father Bettinelli, 'Father Totila.' One of Bettinelli's latest works is, 'Delle Lettere e delle Arti Mantovane,' a book which contains much local and municipal erudition concerning Mantua. He wrote also a vast quantity of verses of little or no merit. He left two poems in MS., one, 'L'Europa punita o il Secolo XVIII.,' in twelve cantos, and the 'Bonaparte in Italia,' in four cantos. In the latter he extols Bonaparte, whom he had reviled in the former. In this he followed the example of other literary men of his age, but he has been luckier than they, inasmuch as both his poems have remained inedited. They exist in MS. in the library of Mantua. (Ugoni, *Della Letteratura Italiana.*)

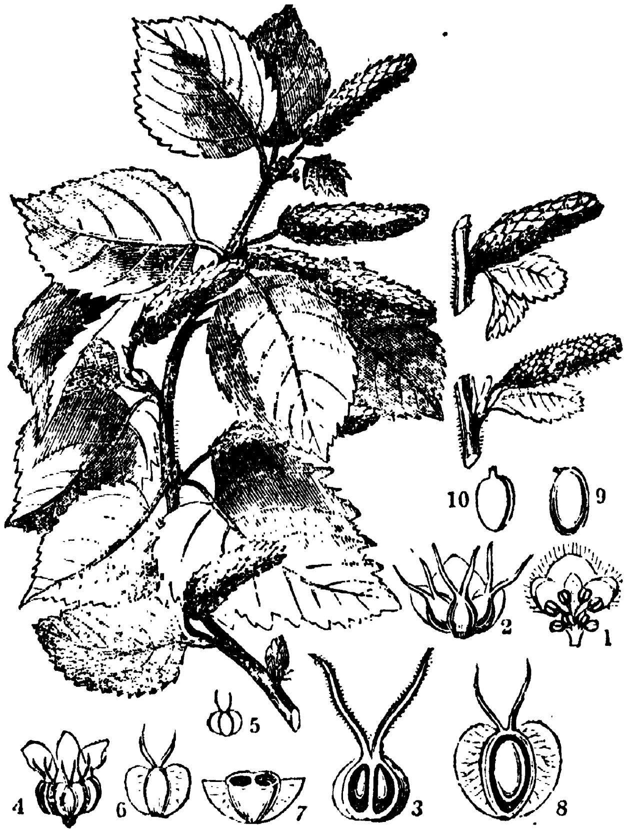
BETULA, or the birch, a genus of hardy trees or shrubs, some of the former of which are among the most useful plants of northern latitudes. It gives its name to the natural order *Betulineæ*, of which it is the principal genus; and is characterized by its flowers growing in catkins, the scales of which are thin and three lobed, and by the scales subtending three flat fruits, each furnished with two styles, and expanded into a thin wing on either side; these fruits are what are vulgarly called birch seeds. The species are, with one exception, found beyond the tropic in the northern hemisphere; the species of the southern hemisphere is a little evergreen plant called *B. antarctica*, of which little is recorded except that it inhabits Tierra del Fuego.

As birches are of considerable importance in cold climates, we shall briefly notice all the more remarkable species which may be conveniently disposed according to their prevailing geographical distribution.

* European Birches.

1. *Betula Alba*, the common birch; branches erect, when young covered with a short close down, never smooth, and warted: leaves with a somewhat rhomboidal form, ovate generally doubly serrated, with downy footstalks, acute, but not tapering to the point: catkins pendulous. A native of Europe from the most northern to the most southern countries, in the latter, however, not appearing except on mountains at a considerable elevation; on Ætna it does not occur below 4762 feet above the sea, according to Philippi. It is also found eastward in Asia, as far at least as the Altai Mountains. Although this species is not much valued for its timber, it is extremely useful for many other purposes. Russia skins are said to be tanned with the empyreumatic oil of its bark, from which the peculiar odour of such leather is derived. Cordage is obtained from it by the Laplanders who also prepare a red dye from it; the young shoots serve to nourish their cattle, and vinegar is obtained from the fermented sap. The inhabitants of Finland use the leaves for tea, and both in Lapland and Greenland strips of the young and tender bark are used as food. From the timber are manufactured hoops, yokes for cattle, bowls, wooden spoons, and other articles in which lightness without much durability is sufficient; baskets and hurdles are often made of part of its shoots; and from its rising sap, extracted by means of openings cut into its alburnum in the spring, and fermented, a kind of wine is obtained which is of an agreeable quality, but will not keep. During the siege of Hamburg by the Russians in 1814, almost all the birch trees of the neighbourhood were destroyed by the Bashkirs and other barbarian soldiers in the Russian service, by being tapped for their juice.

The birch naturally grows in poor, sandy soil, on which it thrives fully as well as in that of a more fertile kind. It is said to attain sometimes the height of seventy feet, with a diameter of two feet; in England it does not acquire such considerable dimensions; as it approaches both its northern and southern limits it gradually decreases in size, conformably to the laws which regulate vegetable development. Its bark is said to be very durable.



[Betula alba.]

1. The inside of a barren scale, with the anthers attached. 2. Inside of a fertile scale, with the ovaries attached. 3. An ovary cut through perpendicularly. 4. Inside of a scale, with three ripe fruits. 5. A ripe fruit of the natural size. 6. The same magnified. 7. A transverse; and 8. A perpendicular section of the same. 9. A ripe seed. 10. An embryo.

2. *Betula pendula*, the weeping birch; branches drooping, when young perfectly smooth, and marked with little pearly specks; leaves with a somewhat rhomboidal form, ovate, either doubly or singly serrated, acute, but not tapering to the point, sometimes slightly hairy; catkins pendulous. Very common in different parts of Europe, along with the last, in the properties of which it appears to participate, and with which it is often improperly confounded. It differs from the common birch not only in its weeping habit, but also in its young shoots being quite smooth, bright chestnut brown when ripe, and then covered with little white warts. The *Betula pontica* of the nurseries is a slight variety, with a few straggling hairs on the leaves and leafstalks, and a less drooping habit.

3. *Betula pubescens*, the downy birch; branches erect, covered all over with very close down; leaves heart-shaped, ovate, taper-pointed, doubly and sharply serrated, very downy. A smaller species than the first, found in the bogs of Germany; a variety of it is called *Betula urticifolia* in gardens.

4. *Betula nana*, the dwarf birch; leaves orbicular, crenated, with strongly marked veins on the under side; catkins upright. A small bush, found in Lapland and the mountainous parts of other northern countries; it even stretches across the whole continent of Asia as far as Unalaschka. To the people of the south this plant has no value, but to the Laplanders it affords a large part of their fuel; and its winged fruits are reported to be the favourite food of the ptarmigan. The place of this is occupied in America by a species called *Betula glandulosa.*

* * Asiatic Birches.

5. *Betula Bhojpattra*, Indian paper birch; leaves oblong, acute, with nearly simple serratures, somewhat heart-shaped at the base; their stalks, veins, and twigs hairy; ripe catkins, erect, cylindrical, oblong; bracts smooth, woody, two-parted, blunt, much longer than the fruit, which has narrow wings. A tree found on the Alps of Gurwal and Kumaon, where it was discovered by Dr. Wallich, who informs us that its thin delicate bark furnishes the masses of

flexible laminated matter, of which great quantities are brought down into the plains of India for lining the tubes of hookahs. The Sanscrit name of the substance is *boorja*, a word which Mr. Graves Haughton considers the root of birch, and one of many proofs that the Saxon part of the English language is descended from the Sanscrit. (Wall. *Plant. As. Rar.* vol. ii. p. 7.) The bark of this species is of a pale cinnamon colour. It is nearly allied to *B. papyracea.* It would be a beautiful tree in this country if it could be introduced, as also would all the following Indian species.

6. ***Betula acuminata***, tapering-leaved birch; leaves ovate, lanceolate, somewhat simply serrated, taper-pointed, smooth, dotted beneath, leafstalks and twigs quite smooth; ripe catkins, very long, pendulous, cylindrical, crowded; their rachis and the bracts, which are auricled at the base, downy. Found on many of the mountains of Nepaul, and in the great valley of that country, following the course of rivers. It forms a very large and noble tree, from fifty to sixty feet high, covered with branches from its very base. The wood is stated by Dr. Wallich to be greatly esteemed by the inhabitants, who employ it for all sorts of purposes where strength and durability are required.

7. *Betula nitida*, shining birch; leaves oblong, taper-pointed, with fine double serratures, the twigs and leafstalks hairy; ripe catkins, pendulous, cylindrical, crowded; bracts three-lobed, hairy, with the lengthened middle lobe longer than the fruit. A tree found in Kumaon.

8. *Betula cylindrostachya,* cylindrical spiked birch; leaves oblong, taper-pointed, heart-shaped, with fine double serratures; twigs, leafstalks, and veins downy; ripe catkins pendulous, very long, cylindrical; fruit deeply two-lobed; bracts linear-lanceolate, blunt, membranous, with two teeth at the base, fringed with hairs. A tree found in Kumaon.

* * * American Birches.

9. *Betula populifolia*, the poplar-leaved or white American birch; catkins pendulous; branches perfectly hairless, drooping, very much covered with resinous warts; leaves triangular, taper-pointed, doubly-toothed, on long weak stalks. This species is more an object of ornament than of utility. It rarely grows more than twenty or twenty-five feet high, except in very rich soils, when it is said to become somewhat taller. It is a native of the northern parts of North America, from the lower parts of New York, New Jersey, and Pennsylvania, to Canada. Michaux says that its bark cannot be divided into thin plates like that of the paper birch or common European species. It is very like the European *B. pendula*, from which the characters we have assigned it are sufficient to distinguish it. There are some varieties of it in the nurseries, varying in the size of the leaves, and in the depth of their indentations, but they are not of any importance.

10. *Betula nigra*, the red birch (*B. rubra*, Mich. *B. lanulosa*, A. Mich.); branches covered closely with a short thick down, which they do not lose till the second year; leaves angularly rhomboidal, very deeply doubly serrated, acute, with the axils and veins of the underside of the leaf downy; stipules narrow-ovate, membranous, smooth, soon dropping off. A native of the borders of rivers, where it grows associated with planes, maples, and willows, in the southern provinces of the United States, delighting as much in heat, according to Michaux, as many other species do in cold, and therefore the best adapted for planting in the southern parts of Europe. It is a handsome species, growing as much as seventy feet high, and from two to three feet thick, and is remarkable for its bark not being white and shining, but brown, dotted with white, and slightly wrinkled. The limbs of the tree are large, and the branches terminate in long flexible pendulous twigs; cask hoops are manufactured from its shoots when about an inch in diameter; and all the brooms used in the streets of Philadelphia, which are far better than those of Europe, are prepared from its tough and elastic twigs. No species can be better marked than this, which appears, however, rarely to have found a place in collections. Its leaves are nearly as large as those of the canoe-birch, and remarkably angular. The stipules are unusually large, and more resemble those of a plane than a birch. The Messrs. Loddiges of Hackney were the first importers of this fine but little known species. In this country it is generally called *B. angulata.*

11. ***Betula excelsa***, the yellow birch (*B. lutea*, Mich.); catkins erect, short, thick, nearly sessile; branches exceedingly downy when young; leaves rhomboidal, acute without any tapering, finely and regularly serrated, or nearly entire; on very downy stalks; stipules large and membranous. Found chiefly in the coldest parts of North America along with the paper birch; south of the Hudson river it becomes rare. Michaux states that it is principally in good alluvial soil; that it thrives in company with black and hemlock spruces and ashes; its greatest height is from sixty to seventy feet, with a diameter of something more than two feet. It is said to be a handsome tree with a straight trunk, often clear of branches as far as thirty or forty feet from the ground. It is remarkable for the bright golden yellow of its bark, which shines as if it had been varnished. Its wood is something like that of the soft birch, but is not so good nor so dark coloured. It may be readily known by its leaves being particularly downy when young, and although they eventually become smooth, their stalks never lose the downy character. It is most like *B. nigra*, from which its thicker and more hairy catkins, and simply serrated leaves distinguish it, independently of other characters.

12. *Betula papyracea*, the paper or canoe birch; catkins thick, pendulous, on long stalks; branches generally more or less downy when young, sometimes hairy; leaves ovate, occasionally heart-shaped, regularly or irregularly serrated, smooth or downy. This, the most valuable of all the species of birch, is a native of North America, where it grows in great quantities, not extending beyond 73° to the north nor 43° to the south, according to Michaux. The slopes of hills and valleys, where the soil is of good quality, are said to be its favourite stations: in such places it often acquires the height of seventy feet.

Its wood is sometimes used in North America for cabinet makers' work; but it is not of much value for exposure to weather, as it soon decays if subjected alternately to damp and dryness. Its bark is the part which is the most esteemed; this part is said to be so durable that old fallen trees are stated to be frequently found with their form so well preserved that one would think them perfectly sound, but upon examining them it is found that the whole of the wood is rotted away, and nothing is left but the sound and solid case of bark. This part is used for a number of useful purposes; log-houses are sometimes thatched with it; little boxes, cases, &c., and even hats are manufactured from it; but its great value is for making canoes. For the purpose of obtaining pieces sufficiently large for such a purpose, we are informed by Michaux that the largest and smoothest-barked trees are selected; in the spring two circular incisions at the distance of several feet are made, and a longitudinal incision on each side; then by introducing a wedge of wood between the trunk and bark, the latter is easily detached. With threads prepared from the fibrous roots of the white spruce fir (*Abies alba*), the pieces of bark are sown together, over a light frame-work of wood, and the seams are caulked with the resin of the balm of Gilead fir. Canoes of this sort are so light as to be easily transported upon the shoulders of men. It is said that one capable of carrying four persons and their baggage only weighs from forty to fifty pounds. (Michaux.) Several varieties are found in the plantations of this country; they differ principally in the breadth and downy character of the leaves, and in the hairiness of the branches. The true *B. papyracea* has branches and leaves with scarcely any hairs; the variety *B. trichoclada* has extremely hairy branches and heart-shaped leaves; and that called *B. platyphylla* has very broad leaves.

13. *Betula lenta*, the soft, black, or cherry birch (*B. carpinifolia*, A. Mich.); catkins short, erect; branches quite smooth; leaves thin, cordate, oblong, tapering to a point, simply or doubly serrated, downy when young, smooth afterwards; stipules very large and membranous. None of the American birches produce timber so valuable as this; whence one of its American names is mountain mahogany. Its wood is hard, close-grained, and of a reddish brown; it is imported into this country in considerable quantity, under the name of American birch, for forming the slides of dining-tables, and for similar purposes. It is abundant in the midland states, as in New York, New Jersey, and Pennsylvania, but more to the south it only appears on the summits of the Alleghanies. Deep rich soil is what it prefers; and when it attains its greatest dimensions, which are as much as seventy feet of height and three of diameter, it is a handsome tree, budding remarkably early in the spring, when its leaves are covered with a short thick coat of down; this disappears later in the season, and leaves them of a bright and lively green. Michaux says that it grows with un-

usual rapidity, and mentions an instance of a plant which in nineteen years grew to the height of forty-five feet eight inches. It is rarely seen in this country, although it is perhaps one of the best suited to our climate. The thinness of its leaves, combined with their oblong figure, distinguishes this from all the other species.

All the species of birch, except the common and the weeping, are multiplied by layers in the usual way. The two others are propagated by their seeds, which may be procured in this country in great abundance. It is only necessary to sow them thin in beds as soon as gathered, covering them with not more than a quarter of an inch of light earth. The seedling plants should be bedded out when one year old, and after the second year, if properly managed, they will be fit to remove to the plantation. When old they are transplanted with considerable difficulty.

BETULA'CEÆ, a natural order of *Apetalous Dicotyledonous* plants, named after the subject of the preceding article. It was formerly comprehended, along with other groups, in what were called *Amentaceæ*, because it bears its flowers in *amenta*, or catkins; but it is distinguished from all those which agree with it in this particular, by its flat, one-seeded, two celled membranous fruit, and pendulous ovules. A just idea of the general nature of the plants of this order will be obtained from the study of the common birch; all the species are either trees or shrubs, with the fertile flowers in one catkin and the barren in another, and they have, in general, the main lateral veins of their leaves running straight from the midrib to the margin, without curving inwards. They are found in the colder parts of the world, or in mountainous regions in hot countries.

BETU'WE, a large and fertile district of Holland, enclosed between the Waal, the Northern Rhine, or Rhine of Leyden, and the Lek, which joins the Rhine to the Waal, and thus forms an island, which occupies part of the country of the antient Batavi, or 'Insula Batavorum.' [See BATAVI.] The name of Betuwe is supposed to be derived from that of Batavi. The length of the district of Betuwe from the separation of the Waal from the Rhine near Doornburg, to the junction of the Lek with the Waal, here called the Maas, below Papendrecht, is nearly sixty miles from E. to W. Its breadth is very irregular, owing to the great sinuosities of the Waal and the Northern Rhine, which form its boundaries; the breadth is greatest at its western extremity, between Vianen and Gorkum, where it is about thirteen miles. The principal towns of the Betuwe are Gorkum (8000 inhabitants), and Thiel (4000). The river Linghe, which falls into the Waal at Gorkum, crosses the Betuwe through the greater part of its length. The eastern and largest part of the Betuwe belongs to the province of Gelderland, whose capital is Arnheim, and the western part to the province of South Holland, whose capital is S'Gravenhage. The Betuwe is altogether one of the most fertile and best cultivated districts in Holland: it produces corn, vegetables, and fruit in abundance. A great quantity of butter and cheese is also made in this district.

BEVELAND, a district of the province of Zeeland in the kingdom of Holland, consisting of the islands of Noord Beveland and Zuid Beveland, with a smaller island called Wolfaartsdijk, situated between the two. These islands lie in the great æstuary of the river Schelde, and between two branches of that river, the East Schelde, or more properly North Schelde, which divides them from the islands of Tholen and Schouwen, and the Hond, called also West Schelde, but which ought to be called rather South Schelde, which divides them from the main land. A channel of the sea separates them from the island of Walcheren which lies west of Beveland. South Beveland is by far the largest and finest of the three islands; its length is twenty-five miles from E. to W., and its greatest breadth is between eight and nine miles from N. to S. It produces corn, abundance of fruit and vegetables and madder. Fish is also caught in great plenty near the coast. South Beveland has suffered from inundations, especially in the great flood of 1532, by which a considerable portion of the east side of the island was destroyed. On this part of the island stood the rich town of Romerswaal, which the flood of 1532 separated from Beveland; the town was gradually encroached upon by the sea, till in the beginning of the seventeenth century all the inhabitants had deserted it. Some of the land which was inundated has been since recovered. The great floods of Jan. 14 and 15, 1808, did this island immense damage; whole districts which had been gained by the greatest patience and industry were overwhelmed; the beautiful village of Kruiningen was nearly destroyed; and but for the assistance of the whole country of the Netherlands, the devastation could not have been repaired. The capital, Goes, with a town of above 4860 inhabitants, is situated on the N. coast of South Beveland; there are besides many villages scattered about the island. Noord Beveland is a much poorer country, being low and marshy; it was formerly a fine island, but was swamped in the dreadful inundation of 1532, when a large part of the inhabitants perished. It remained covered by the waters for many years after, until the ground becoming raised by the alluvial deposits, it was again embanked and inhabited. The length of Noord Beveland is about thirteen miles, and its greatest breadth about four miles. It has a few villages or hamlets, the principal of which are Wissenkerke and Kortjyn. Wolfaartsdijk is a small fertile island, which contains two villages and about 700 inhabitants. (Kampen.)

BEVERIDGE, WILLIAM, an eminent prelate and theological writer, was born at Barrow, in the county of Leicester, in the year 1638. He was admitted of St. John's College, Cambridge, in 1653; and during his residence there was remarkable for close attention to his studies, for his piety, and the general regularity of his conduct. So assiduous was his application, and more especially in the learning of the Oriental languages, that he published at the early age of twenty a treatise in Latin, 'De Linguarum Orientalium, præsertim Hebraïcæ, Chaldaïcæ, Syriacæ, Arabicæ, et Samaritanæ, præstantiâ et usu, cum Grammaticâ Syriacâ, tribus libris traditâ,' a work held in great esteem. He took his degree of bachelor of arts in 1656, and that of master of arts in 1660, in which latter year he was ordained both deacon and priest. Soon after, he was presented by Sheldon, bishop of London, to the vicarage of Ealing in Middlesex, where he wrote his work on chronology, published in 1669, and intitled 'Institutionum Chronologicarum libri duo, unâ cum totidem Arithmetices Chronologicæ libellis.' This treatise is considered to be a very useful introduction to the study of chronology. In the former part the nature and terms of chronology are stated and explained; and in the latter is offered a short system of characteristic arithmetic, by which chronology may be the better and more fully understood. In 1672 he was elected by the lord mayor and aldermen of London to the rectory of St. Peter, Cornhill, on which occasion he resigned the vicarage of Ealing; and in the same year he published, in two volumes folio, his learned and laborious work, 'Συνόδικον, sive Pandectæ Canonum S.S. Apostolorum et Conciliorum ab Ecclesiâ Græcâ receptorum; nec non Canonicarum S. S. Patrum Epistolarum, &c.' The first volume contains the several canons which are attributed to the apostles, those of the councils, of the first of Nice, the first of Constantinople, of that of Ephesus, of Chalcedon, of the sixth in Trullo, of the second of Nice, of the first and second of Constantinople holden in the church of the apostles, of that of Constantinople holden in the church of Sancta Sophia, of those of Carthage, Ancyra, Neocæsarea, Gangra, Antioch, Laodicea, Sardica, and Carthage; together with the arguments of Joseph the Egyptian, on the canons of the four general councils. The contents of the second volume comprise the canons of Dionysius Alexandrinus, of Petrus Alexandrinus, of Gregory Thaumaturgus, of St. Athanasius, St. Basil, St. Gregory Nyssenus, the canonical answers of Timothy, bishop of Alexandria; the canons of Theophilus, archbishop of Alexandria; the Catholic epistles of Cyril, likewise archbishop of Alexandria; verses of St. Gregory the Divine, and Amphilochius; a circular letter of Gennadius, patriarch of Constantinople; a letter of Farasius, patriarch of Constantinople, to Pope Adrian; a synopsis of the canonical letters of Alexius Aristenus; and an alphabetical index, by Matthew Blastaris, of all the canons; of the synod which restored the patriarch Photius to the see of Constantinople, and the acts of the eighth synod of Constantinople. The editor enriched his work with copious notes, which show an extensive and intimate acquaintance with the subject matter. In his notes he had sharply reflected on an opinion urged by John Daillé, 'De Pseudepigraphis Apostolicis,' that the apostolical canons were an imposition of the fifth century. Beveridge placed the date of them at the end of the second and beginning of the third. Upon this, an anonymous writer disputed the correctness of his opinion; and in consequence of it appeared Beveridge's 'Codex Canonum Ecclesiæ

Primitivæ vindicatus et illustratus,' in which he fairly dislodged his opponent, and established his own position, both as to the authority of the apostolical canons, and the time in which they were made.

In his new parochial charge his earnestness and diligence were so constant, and his labours in the service of the church so unwearied, yet prudent, that he obtained the appellation of 'the great restorer and reviver of primitive piety,' and his parish was referred to as a model of Christian regularity and order. It is delightful to contemplate such a character in any instance; but in this it is the more remarkable and the more worthy of admiration, when we look to the nature and course of his studies. Profound as they were, and occupying a large portion of his time, he nevertheless was an active parish priest, unfailing in all the calls and obligations of his office. The favourable notice of his diocesan, Dr. Henchman, was exemplified in his collation by that prelate in 1674, to the prebend of Chiswick, in the cathedral of St. Paul's; and in 1681 he received a further mark of diocesan approbation and confidence, in his collation by Bishop Compton, the successor of Henchman, to the archdeaconry of Colchester.

A fresh scene was now opened to him, in which he showed a correspondent ability and usefulness. He personally visited each parish within his jurisdiction, a practice not then common; thus setting an example, which, if strictly copied, would have greatly added to the efficiency and reputation of the church. 'He took a very particular and exact account of every church he visited; the condition it was in; what utensils it had, or wanted: what repairs were necessary, and the like. The same method he used with regard to the clergy's houses: and all those things he set down distinctly in a book, which was in the possession of his successor.' In 1684 he became prebendary of Canterbury, and, at the Revolution, was nominated chaplain to King William and Queen Mary. On the deprivation of Bishop Kenn, who had refused to take the new oaths, the bishopric of Bath and Wells was offered to him, which, however, he thought proper to decline, and, as was alleged, from an unwillingness to step into a see which had thus become vacant. The previous incumbent, who had been distinguished, in trying circumstances, by the strongest fidelity and most undaunted courage, was still living in ejection and poverty. The declining of the bishopric under the circumstances was honourable to Beveridge. His advancement to the episcopal rank was thus delayed some few years longer: and it was not till 1704, in July of which year he was consecrated bishop of St. Asaph, that he received the promotion which he so well deserved, on the translation of Dr. Hooper to Bath and Wells. As in every station he had hitherto filled the performance of his duty was his main object, so in this he manifested the same activity and the same earnestness: it seemed to be the aim of his endeavours to make others what himself had been. 'Indeed,' says the biographer, 'being placed in this eminent station, his care and diligence increased, in proportion as his power in the church was enlarged; and as he had before discharged the duty of a faithful pastor over his single fold, so when his authority was extended to larger districts, he still pursued the same pious and laborious methods of advancing the honour and interest of religion, by watching over both clergy and laity, and giving them all necessary direction and assistance for the effectual performance of their respective duties.' Immediately on his promotion he addressed a 'Pastoral Letter to his Clergy,' pressing upon them the important duty of catechizing; and, the more to enforce his recommendation, he at the same time printed his 'Church Catechism Explained,' a useful tract, as the many reprints of it testify; and one very proper to come from an individual who had shown himself so competent and exemplary in his various offices in the church, and in the imparting of instruction to all classes and conditions. This excellent man possessed his episcopal see not quite four years, dying on the 5th of March, 1708, in the seventy-first year of his age. He died at Westminster in the cloisters of the abbey, and was buried in St. Paul's Cathedral. The larger portion of his property he bequeathed to the uses of the two Societies for Promoting Christian Knowledge, and for Propagating the Gospel in Foreign Parts. To the vicarage of Barrow, and to the curacy or chapelry of Mount Sorrel, part of which lies within the parish of Barrow in Leicestershire, he bequeathed a rent charge for religious and charitable purposes therein. The works already described do not comprehend the whole of the published writings of the bishop, but they are all which were published in his lifetime: and it is matter of doubt whether he had an intention of giving to the world any of those which after his death were printed under the direction and on the responsibility of his executor; some of them he certainly had no intention of publishing. The prudence of so general a publication has been disputed; but we venture to think that his executor acted wisely. These works were attacked, and with no gentle hand, by those who were opposed to him in leading principles. His posthumous works are 1. 'Private Thoughts upon Religion, digested into Twelve Articles, with Practical Resolutions formed thereupon.' This manual was drawn up or framed soon after his entering into holy orders, and with the sole design, as is evident from that fact, of confirming himself in principle, and of assisting him in the course to which he was committed. His method was suited to his purpose, as it obliged him to a review of the evidences of his religion, including their practical operation. These articles contain the substance of his religious views, and they show that he had not without due deliberation attached himself to the Christian ministry: they prove his careful inquiry, and his conviction of the truth of the doctrines of the Gospel, and may be profitably studied, especially by candidates for orders and the younger members of the ministry. 2. 'Private Thoughts upon a Christian Life, or Necessary Directions for its Beginning and Progress upon Earth, in order to its Final Perfection in the Beatific Vision.' 3. 'The Great Necessity and Advantage of Public Prayer and Frequent Communion.' This was a subject which he was admirably qualified to handle, and on which his conviction was most seriously alive. To it he added 'Meditations, Ejaculations, and Prayers' fitted to the design, and breathing a spirit of piety primitive and sincere. 4. 'A Hundred and Fifty Sermons.' 'Of these,' says the excellent Mr. Nelson, 'I cannot forbear acknowledging the favourable dispensation of Providence to the age in which we live, in blessing it with so many of those pious discourses which this truly primitive prelate delivered from the pulpit; and I the rather take the liberty to call it a favourable dispensation of Providence, because he gave no orders himself that they should be printed, but humbly neglected them as not being composed for the press. But this circumstance is so far from abating the worth of the sermons, or diminishing the character of the author, that to me it seemeth to raise the excellency of both; because it showeth at once the true nature of a popular discourse, and the great talent this prelate had that way. For to improve the generality of hearers, they must be taught all the mysteries of Christianity and the holy institutions belonging to it: since it is upon this true foundation that the practice of Christian virtues must be built, to make them acceptable in the sight of God: and then all this must be delivered to the people in so plain and intelligible a style, that they may easily comprehend it; and it must be addressed to them in so affecting and moving a manner, that their passions may be winged to a vigorous prosecution of what is taught. If I mistake not, the sermons of this learned bishop answer this character; and I am confirmed in this opinion by the judgment of those who are allowed to have the greatest talents for the pulpit, as well as for all other parts of learning. He had a way of gaining peoples' hearts, and touching their consciences, which bore some resemblance to the apostolical age; and when it shall appear that these bright preachers, who have been ready to throw contempt upon his lordship's performances, can set forth as large a list of persons whom they have converted by their preaching, as I could produce of those who owed the change of their lives, under God, to the Christian instructions of this pious prelate, I shall readily own that they are superior to his lordship in the pulpit. Though, considering what learned works he published in the cause of religion, and what an eminent pattern he was of true primitive piety, I am not inclined to think that his lordship will, upon the whole of his chracter, be easily equalled by any one.' Dr. Henry Felton speaks of the bishop and his sermons in similar terms. They are masterly performances, and 'may, for acuteness of judgment, ornament of speech, and true sublime, compare with any of the choicest writings of the antient doctors of the church, who lived nearest to the apostles' times.' 5. 'Thesaurus Theologicus: or, a Complete System of Divinity, summed up in brief notes upon select places of the Old and New Testament; wherein the sacred text is reduced under proper heads, explained and illustrated with the opinions and authorities of the Antient Fathers, Councils, &c.' The editor, in his preface, informs the reader, that this book is given to the public upon the judgment of several eminent divines; he says that they 'are, truly speaking, no other than loose papers, and that the author, that great and venerable prelate whose name they bear, does not seem to have designed them for the press;' but that, 'upon consulting with several eminent divines, and other pious and learned gentlemen, they did, after perusal, conceive of them as just and choice fragments, containing a summary of the Christian doctrine; the several topics being digested in a most excellent method, confirmed from several parallel places of Scripture; and very often illustrated, in the like concise manner, from the testimonies of fathers, councils, &c.' 6. 'A Defence of the Book of Psalms, collected into English Metre by Thomas Sternhold, John Hopkins, and others, with critical observations on the New Version compared with the Old.' The bishop prefers the Old Version to the New, on examination and comparison, as more genuinely expressing the signification of the original, and as more suited to the general taste and capacity. It had been objected to the Old Version, that the words were antiquated, out of date, and almost forgotten in their meaning; but he justly decides that, antiquated as they may be called, they are true English words, faithfully adhering to the meaning of those of which they are the translation, full and sufficient in themselves; and in any instances where they are such as may seem ill adapted to present habit, or to have gone out of use, they are easy of explanation, and readily to be brought home to the understanding; and, when understood, show sterling worth and utility; whereas the more modern words, which have in the New Version usurped their station, are but a mixture of different languages, living and dead, and can never be made of satisfactory expression by the great mass of the people; besides which, he objects to the New Version as rather a paraphrase than as exact a translation as might have been had. 7. 'Exposition of the Thirty-nine Articles.' This work was attacked with some considerable severity by an anonymous writer; but it may be enough to remark that, the bishop's view being in entire conformity with every principle of the Church of England, as maintained in her Liturgy and Homilies, the attack was upon the Church herself. The whole works, with the life of Bishop Beveridge, and copious indexes, were published in 1824, in nine volumes 8vo., by the Rev. Thomas Hartwell Horne.

BEVERLEY, a market town, a borough, and a township, the capital of the East Riding of the county of York. Beverley and its liberties form a separate division of the wapentake of Harthill. 'It contains the three parishes of St. Mary, St. Nicholas, and St. Martin, and a small part of the parish of St. John, without any house or building upon it. By the Boundary Act is added to the antient borough, for the purposes of electing members to serve in parliament, such part of the parish of St. John as is comprised within the liberties of Beverley. That portion of the parish of St. John which lies within the liberties of Beverley contains and is co-extensive with six of the eight townships into which such parish is divided. These six townships constitute the liberties.' (*Corporation Reports.*) It is 180 miles N. by W. of London; 9 miles N. by W. of Hull, and 28 miles E. by S. of York. It is situated at the base of the Wolds and about a mile from the river Hull. It is governed by a mayor, a recorder, 12 aldermen, and 13 capital burgesses; and it sends two members to parliament. The population of the borough and liberties of Beverley is 8302. It is one of the polling-places, under the Reform Act, for the East Riding of Yorkshire, and the court is held here for the election of the Knights of the Shire.

The antient history of Beverley is obscure. The tract of country from the Humber to the Tyne was occupied by that powerful nation of antient Britons, the Brigantes; and there are some indications of there having been British settlements in the vicinity of Beverley, but whether during the Roman sway, prior to that period, or immediately after, appears uncertain. No remains have been discovered which are sufficient to warrant the idea of this town having been a Roman station; historians whose writings are generally received as authentic date the origin of Beverley at A.D. 700.

The woods and marshes of Deira lay immediately to the north of the Humber. These marshes are supposed to have been lakes, or meres whenever the river Hull overflowed the country. That there have been many such meres in Holderness and the adjacent country is evident not only from the appearance of the district, but also from the names of many places within such district. Woodman*sea*, Rot*sea*, Watton (*Wet-town*), Horn*sea*, &c. There is still a large mere at Hornsea. The termination *sea* (or *sey*, as it is also spelt) is nearly synonymous with *mere*. (See Young and Bird's *Geological Survey of the Yorkshire Coast.*) *Beverley* also takes its name from one of these lakes—*Beverlac*, the lake of beavers, 'so named from the beavers with which the neighbouring river Hull abounded.'

In the early part of the eighth century, John, archbishop of York, dedicated a church which he founded at Beverley to St. John the Baptist; and he afterwards converted it into a monastery; he passed four years in this retirement, and when he died was buried here. Towards the close of that century the church and monastery were ravaged by the Danes, who destroyed 'all the books and ornaments;' 'the monastery of Beverley remained three years desolate; afterwards the presbyters and clerks returned to Beverley, and repaired the place.' (See *Monasticon Anglicanum.*) In the time of Athelstan the church of Beverley was visited by that monarch on his route northwards to punish the bad faith of Constantine, the king of Scotland. Athelstan changed it from a monastery into a college. He placed himself under the protection of the sainted John of Beverley, returned from his expedition victorious, and in gratitude to his patron-saint, he conferred great privileges and rich possession son the church of St. John. This was probably about the year 937-8. Athelstan granted a charter to the people of Beverley, exempting them from certain tolls, and conferring upon them important privileges, in allusion to which the following distich is to be seen in the minster church, between the pictures of Athelstan, the founder, and St. John of Beverley, the patron-saint of the church;

Als free, make I the
As hert may thynke, or eyh can see.

The charter of Athelstan was confirmed by succeeding kings, or similar ones were granted. John especially conceded to them freedom from 'toll, pontage, passage, stallage,' &c. in consequence of which the burgesses had to pay him five hundred marks. Of these rights and privileges the people of Beverley became afterwards exceedingly tenacious. Mr. Poulson, the modern historian of Beverley, writing of the year 1424, says, 'It is probable that as trade increased they (the burgesses) resorted to all the markets and fairs of the neighbouring towns for the disposal of their goods, which they had an opportunity of vending, without being subject to the above impositions' (tolls or customs), 'and which, at the time referred to, would give them advantages over their less privileged competitors.' 'It seems to have been the constant practice of the burgesses to apply for a ratification of their privileges on the accession of every new king; and it appears that they were compelled to this mode of preserving their rights from the constant demands made upon them in other boroughs for the payment of toll.

It appears that Beverley was a manufacturing town at an early period, and it is mentioned as one of the towns which might 'freely buy and sell dyed cloths.' It is probable that the arts of weaving and dyeing were carried on at Beverley, woad and wool being two of the articles which paid a toll when taken there for sale. In the reign of Henry II. some outward-bound Spanish merchants were plundered on the Essex coasts of scarlet and other cloths, which were recognised as being those of Beverley, Stamford, and York.

In the time of Edward III. Hull was a town of increasing importance; its first and great charter was granted at Westminster in 1299. (See Frost's *Notices of the Town and Port of Hull.*) This town was an impediment to the advancement of Beverley, and as it offered greater facilities for domestic and foreign commerce, it obtained the preference due to its superior situation at the junction of the river Hull with the Humber, and the pretensions of Beverley as a port became disregarded.

To raise the declining commerce of Beverley, a charter incorporating the town was procured in the 15th year of Elizabeth, and the right to send two burgesses to represent the burgesses in parliament was acknowledged. This right the men of Beverley had exercised as early as the time of Edward I., but for a long series of years they had ceased to avail themselves of such privilege. The last and the governing charter is that of 1 James II. A printing-press was established in Beverley in the year 1509, by Hugo Goes, supposed to be the son of a printer of Antwerp, but as he soon after removed to London, it has been presumed that he received little encouragement to remain at Beverley. During the civil wars in the time of Charles I. and Cromwell, Beverley was frequently a scene of agitation and excitement, being by turns subjected to the exactions of each party. It was here that Sir John Hotham was arrested by his nephew, on his flight from Hull, 'as a traitor to the commonwealth.' Sir John had represented Beverley in several successive parliaments. Shortly after his arrest, he and his son were executed on Tower-Hill.

The modern town of Beverley is of great length, considering its population, being considerably more than a mile from its commencement, on the road from Hull, to its outskirts on the Driffield road. The principal street is wide and airy: the market place, which comprises an area of nearly four acres, is ornamented with an octangular market cross. Its present commerce is chiefly confined to tanned leather, oatmeal, malt, corn, and coals. There is an extensive colour and whiting manufactory, an iron foundry, and a ship-building yard. The shambles is a modern building of brick, part of which has lately been converted into a corn exchange. The employments of its 1567 families, comprising 6728 persons, in 1821, are thus shown·

Families occupied in agriculture . .	176
Do. in trade and in manufactures . .	731
Other classes not above comprised . .	660
	1567

The population of the borough and liberties in 1821 was 7521.

Beverley communicates with the river Hull by a canal called Beverley-Beck: this canal, which was made navigable about the year 1344, is about a mile in length, and is kept in repair by certain tolls, which two local Acts of Parliament (13 Geo. I., 18 Geo. II.) empower the corporation to collect.

The finest object in Beverley is the collegiate church of St. John, commonly called the Minster-church. Like many cathedral churches in the kingdom, this edifice has been built at different periods, and exhibits the several styles of Gothic architecture which Mr. Rickman has distinguished under the names of the *early*, the *decorated*, and the *perpendicular* English. The principal window at the east end is said to be copied from that of York. Its pointed arch is divided by mullions, which are strengthened by parallel ones on the inside; these bear a small gallery connected with the transoms, which divide the lights into two portions. This window is the only one in the Minster which can boast of stained glass. The windows of the nave are of the *decorated* style. The arch is divided by mullions into four lights, and these mullions branch out into the flowing tracery of various figures. The entrance to the nave on the north side is by a porch of exquisite beauty; it has a pannelled front, which is perhaps unequalled. The west front is also an object of interest to the architect: it is described by Mr. Rickman as being by far the finest of its style in England. He says, 'that what the west front of York is to the *decorated*, so is this to the *perpendicular* style, with this addition, that in this front nothing but one style is seen,—all is harmonious.' For a more particular description we refer to Mr. Rickman's work on 'Gothic Architecture,' p. 105. The dimensions of the Minster are:—

	Feet.	Inches.
Length from east to west . .	334	4
Breadth of the nave and side aisles .	64	3
Length of the great cross aisle .	167	6
Height of the nave . . .	67	0
From the vaulted roof of the nave to the summit of the centre tower .	40	0
Height of the side aisles . .	33	0
Height of the two west towers .	200	0

The celebrated Percy Shrine, which is within the choir, is an elegant specimen of the *decorated* style, and of most exquisite workmanship. To which of the ladies of the house of Percy it was erected is a matter of controversy on which much difference of opinion exists. The collegiate establishment was dissolved in the 1st year of Edward VI., and its revenues were confiscated. Elizabeth, in the twenty-first year of her reign, granted certain chauntries and lands (part of the former property of the church) to the mayor, governors, and burgesses of Beverley, for the repair and maintenance of the fabric of the Minster. The income of this estate, in the year 1806, was 528*l.* 12*s.* 9*d.*; but at present it is near 800*l.* per annum.

Sir Michael Warton, by his will, dated 23rd May, 1724, bequeathed 4000*l.* to the same and other purposes. This bequest has been invested in land, and in 1806 produced an income of 323*l.* 6*s.* 9*d.*, making the whole income of the Minster (in 1806) 851*l.* 19*s.* 6*d.* Of this sum 390*l.* 15*s.* has been appropriated by authority of parliament to the different officers of the church, and the remainder, 461*l.* 4*s.*, constitutes the fund for repairing the fabric; but the repairing fund, owing to the increased value of Elizabeth's grant since 1806, must now be much greater. The distribution of the above-mentioned sum of 390*l.* 15*s.* is as follows:—Head curate, 100*l.*; two assistant curates, 209*l.* 15*s.*; organist, 60*l.*; receivers, 21*l.* From other sources the salary of the head curate is raised to 175*l.* 15*s.* 6*d.*, and that of each of the assistant curates to 120*l.*

In the year 1708 the Minster was found to be in a very dilapidated state, but by the active exertions of Mr. Moyser, M.P. for the borough, a fund was procured for its restoration; since this date it has never been suffered to fall into decay. (See a short history of Beverley Minster, 2nd ed. Beverley, 1835.)

St. Mary's Church is an exceedingly handsome and spacious Gothic building, with an elegant tower at the intersection of the two parts of the cross. Its estates produce about 800*l.* per annum. This income is 'for adorning and keeping in repair the fabric, utensils, and habiliments of St. Mary's Church; for paying the salaries of the sexton and common servants of the church,' &c. There were formerly two other churches in Beverley, but they no longer exist. In antient times there was a monastery of Black Friars, and another, of Franciscans or Grey Friars, an establishment of Knights Hospitallers, and other houses more or less connected with the antient religion of the country, for private retirement, and for the relief of the poor and infirm.

The most antient dissenting meeting-house in Beverley is the Independent Chapel. The present building was erected in 1800, but there existed one prior to it, which was built in 1700. The Wesleyan Methodists, the Church Methodists, the primitive Methodists, the Baptists, and the Quakers have all places of worship here. The Church Methodists took their rise at Beverley; they separated from the Wesleyans chiefly on the ground of the government of that body being placed in the hands of the travelling preachers, who assemble in conference and make laws for the government of the whole body. The Church Methodists contend that the people ought to possess a fair proportion of power, both in the legislative and executive government of the Methodist Society. No services at present take place at the chapels of the Church Methodists and the Quakers. The number of children in the various Sunday Schools is as follows:—Church Sunday Schools (including day scholars) 481. Wesleyan Methodist Sunday Schools 328. Independent Sunday Schools 250, and Baptists' Sunday Schools 80.

The Grammar School of Beverley is of great antiquity; as far as its history can be traced it has been a free school for the sons of burgesses. The general government of the school rests with the corporation, and that body appoints the master. The only endowment is a rent-charge of 10*l.* per annum bequeathed by Dr. Metcalf and payable out of certain estates in Cambridgeshire. The master receives 70*l.* annually from the corporation and a yearly gift of 20*l.* from the two representatives of the borough, which, if not paid by them, is made up by the corporation: there is also a good dwelling-house for the master at a merely nominal rent. (See *Journal of Education*, No. xviii. p. 376.)

The master besides receives a quarterly payment from each free scholar: the payment is at present 40*s.* per annum. For this sum freemen may send their sons to learn the classics and mathematics, but English grammar, writing and arithmetic, are not taught without an extra charge of about 40*s.* more; and therefore few freemen avail themselves of the school. The number of pupils is ten freemen's sons, ten not sons of freemen, and twenty-four boarders. A library of 700 volumes, including many works of value, is attached to this school, which possesses, by the endowments of various benefactors, two fellowships, six scholarships, and three exhibitions to St. John's College, Cambridge.

Graves's Schools.—The Rev. James Graves, formerly curate at the Minster, bequeathed upwards of 2000*l.* to be invested in the public funds for the education of the children of the poor. The schools were commenced in the year 1810. The number of boys taught by this charity is 80; the number of girls is also 80; they are instructed on the system of Dr. Bell in both schools.

The National School was commenced in the year 1815: it is supported by voluntary contributions, and it is for the instruction of boys only. The corporation subscribe 21*l.* annually to this school. About 230 children are taught, and each child, in this school and in Graves's Schools, pays one shilling quarterly.

The Blue Coat School was established by subscription in 1709. It has received some handsome donations, but its funds appear to be adequate to the maintenance, clothing, and instruction of only eight pupils. The other institutions of Beverley are a Savings' Bank, a Dispensary, a News-Room, and a Mechanics' Institute. The latter has 108 members. 'The borough gaol is only used for the confinement of persons committed for trial, those sentenced to simple confinement, and debtors; prisoners sentenced to hard labour are confined in the House of Correction for the East Riding of the county, which is built within the liberties of the town.'. (*Corporation Reports.*)

In places where the church has exercised any considerable degree of influence, we find many charities for the relief of the poor, the aged, and the infirm. Beverley dispenses many such benefactions. Bread is given away in considerable quantities at the Minster, at regular and frequent intervals. There are also almshouses, and hospitals for widows and old men; donations of coal, clothing, and money, and numerous other 'gifts' and 'charities.' In addition to these supplies to the poor, every freeman residing within the borough enjoys a right of pasture for a certain number of cattle over 1217 acres of fine land, called the common-pastures, under certain regulations, and for small payments. The freedom of the borough is obtained by birth, by servitude, or by purchase; the last at the will of the corporation.

The worthies of Beverley, especially deserving of notice, are, John of Beverley; Alured, Alred, or Alfredus, the historian (see Alured); John Alcock, successively bishop of Rochester, Worcester, and Ely; John Fisher, bishop of Rochester; bishop Green, who was a benefactor to the Blue Coat School; and several others of minor note. Mary Godwin (Wolstoncroft) was not born at Beverley, as has sometimes been related: she came from Epping, near London, with her parents, and resided with them at a farm near Beverley.

As the capital of the East Riding of Yorkshire, Beverley contains several public buildings which are devoted exclusively to county purposes. Amongst these are the Sessions House, the East Riding House of Correction, and the Register Office. The Sessions House is situated without the North Bar, on the approach to the town from Malton, Driffield, &c. The House of Correction is in the immediate vicinity of the Sessions House, from which it is separated by the house of the governor. The prisoners are divided into fourteen classes, and have separate beds, and airing yards. In the House of Correction is a treadmill, on which seventy-two persons may be employed; it is applied to the grinding of chalk for the manufacture of whiting. There is also a school where the prisoners are instructed in reading, writing, and arithmetic. This gaol and its appurtenances cost about 42,000*l.*

The Register Office is for the registry of deeds, conveyances, wills, &c. affecting "honors, manors, lands, tenements, or hereditaments" within the East Riding. The Registrar is chosen by freeholders of the East Riding possessing an estate of 100*l.* annual value.

We acknowledge the assistance we have derived from Scaum's *Beverlac* in drawing up the present article, to which we would refer our readers for further information. It is a portion of local history replete with interesting details for the historian and antiquary. (*Communication from Yorkshire; from Beverley.*)

BEVERLEY, JOHN DE, a celebrated English ecclesiastic of the seventh and eighth centuries. Fuller remarks, in recording the history of Yorkshire worthies, that St. John of Beverley may be claimed by this county on a three-fold title; because he was born at Harpham, in the county; was upwards of thirty-three years archbishop of York; and because he died at Beverley, in this county, in a college of his own foundation. He was one of the first scholars of his age, having been instructed in the learned languages by Theodore Archbishop of Canterbury, and he was himself tutor of the venerable Bede. The following works are attributed to him:—1. 'Pro Lucâ Exponendo,' an essay towards an exposition of St. Luke, addressed to Bede; 2. 'Homiliæ in Evangelia;' 3. 'Epistolæ ad Herebaldum, Andenum, et Bertinum; 4. 'Epistolæ ad Holdam Abbatissam.' He was advanced to the see of Haguetold, or Hexham, by Alfred, king of Northumberland, and on the death of Bosa, Archbishop of York, in 687, he was translated to the vacant see. In 704 he founded a college at Beverley for secular priests. In 717 he retired from his archiepiscopal functions to Beverley, where he died May 7th, 721. Three or four centuries after his decease his body was exhumed by order of Alfric, Archbishop of York, and placed in a richly-adorned shrine. When William the Conqueror ravaged the north with a numerous army, he gave orders that the town of Beverley should be spared; and from a similar feeling of veneration for his character, a synod, which was held at London in 1416, directed the anniversary of his death to be commemorated among the festivals of the church. Fuller says, in his account of John of Beverley, which was published in 1660, that his picture was to be seen in a window at the library at Salisbury, with an inscription under it, 'whose character may challenge three hundred years of antiquity, affirming him the first Master of Arts in Oxford.' It appears probable, from a memorandum in Antony à Wood's Diary for 1664, that the shrine in which the remains of John of Beverley had been placed by Archbishop Alfric was injured by a fire which took place in the church in 1188. The following is the memorandum alluded to. 'Upon the taking up of a thick marble stone lying in the middle of the choir of Beverley in Yorkshire, near the entrance into the choir, was found under it a vault of squared free-stone, five feet in length, two feet in breadth at the head, and one foot and a half at the foot. In this vault was discovered a sheet of lead, four feet in length, containing the dust of St. John of Beverley, as also six beads, three of which were cornelian, the other crumbled to dust. There were also in it four great brass pins and four iron nails. Upon this sheet of lead was fixed a plate of lead, on which was this following inscription, a copy of which was sent to A. W.:—"Anno ab incarnatione Domini 1188, combusta fuit hæc ecclesia, in mense Sept. in sequenti nocte post Festum Sancti Matthæi Apostoli; et in anno 1197, 6 Id. Martii, facta fuit Inquisitio Reliquiarum Beati Johannis in hoc loco, et inventa sunt hæc ossa in orientali parte sepulchri, et hic recondita, et pulvis cemento mixtus ibidem inventus et reconditus." A box of lead about seven inches in length did lay athwart the plate of lead. In this box were divers pieces of bones mixed with dust, and yielding a sweet smell.'

Alphred of Beverley was treasurer of the convent in the twelfth century. Fuller says that he wrote a chronicle from Brutus to the time of his own death, which happened in 1136.

In the fourteenth century lived John of Beverley, the Carmelite monk. He was a doctor and professor of divinity at the university of Oxford, and wrote 1. 'Questiones in Magistrum Sententiarum;' 2. 'Disputationes Ordinariæ.'

BEWCASTLE, a small village, formerly a market town, in a large parish of the same name in the county of Cumberland. The name is written Beuthcastle in old records, and was so called from the castle of the family of Beuth which held the property of the district before the Conquest, and for several reigns after that event. Bewcastle now belongs to Sir James Graham, to whose ancestor it was granted by Charles I. It is concluded to have been a Roman station, garrisoned by part of the *Legio Secunda Augusta*, as a security to the workmen who were employed in erecting the famous wall. Many vestiges of antient buildings still remain, and numerous Roman coins and some inscriptions have been found here. The castle was battered down by the parliamentary forces in the year 1641. Its remains, as well as the parish church, are enclosed by a dyke and foss; and it would appear, like many other northern castles, to have been erected on the site of a Roman station. The church is a small structure, on a rising ground at a small distance from the castle. The living is a rectory, worth 81*l.* per annum. Opposite the church porch, at the distance of a few yards from it, is the famous monolithic obelisk, which has been the subject of much discussion among antiquarians. It is fourteen feet two inches in height, and its breadth at the bottom is one foot ten inches. It was formerly surmounted by a cross, which is supposed to have been demolished during some ebullition of popular enthusiasm; but the figure of it has been preserved. The different sides are sculptured in a very curious manner. The north and south sides are divided into compartments, fancifully embellished with various plants and knots; one of the fillets which divide the compartments on the north side, is occupied with an inscription in one line, and more than one-fourth of the entire surface on the same side is occupied with a chequer, which divides the breadth of the surface into eight squares. The east front is one entire running branch of foliage, flowers, and fruit, ornamented with birds and uncouth animals, in the old Gothic style. The west front, which is the most important, is divided into compartments. The lowermost represents a dignified personage in a long robe, leaning against a pedestal, on which stands a bird, supposed to represent a raven, the royal bird of the Danes. This is concluded to be the person for whom the monument is erected. The whole story of its erection is probably told in the scarcely legible Runic inscription which occupies the compartment above this, and in which Roman and Runic characters are intermingled. No satisfactory information can be derived from this inscription in its present state. The next compartment is occupied by an ecclesiastic, whose head is surrounded by a nimbus, and is conjectured to represent St. Cuthbert, to whom, according to some accounts, the church was originally dedicated; the highest compartment contains a representation of the Virgin and infant Jesus. The sculptures on this side seem clearly to denote the Christian origin of the obelisk, and Bishop Nicholson, coupling this with the Runic characters of the inscriptions, inclines to the opinion that it was intended to commemorate the adoption of the Christian faith by the Danes, who are known to have been settled in this part of the country, and were here the most numerous and least disturbed. Mr. Smith, however, (*Gentleman's Mag.*, vol. xii.) is of opinion that it was designed as the sepulchral monument of some Danish king slain in battle: their change of religion he allows might have been consequent upon the death of the king, and that the monument was designed to commemorate both events. Buchanan relates that in the reign of Donald VI., the Danes having wasted Northumberland, were met and engaged by the united forces of England and Scotland, with such uncertain result, that both sides were equally glad of peace, one condition of which was that the Danes should embrace the Christian faith. As no one considers the obelisk to be more than a thousand years old, and as this event happened about 950 years since, Smith not unreasonably conjectures that there was some connexion between the obelisk and the event related by Buchanan. He adds, 'that the monument is Danish, appears incontestable from the characters: Scottish and Pictish monuments having nothing but hieroglyphics, and the Danish both: and excepting Bridekirk font, it appears to be the only monument of that nation left in Britain.' (Hutchinson's *History of the County of Cumberland: Gentleman's Magazine*, vol. xiii.; Gough's *Camden; Beauties of England and Wales.*)

BEWDLEY, a borough and market-town of the county of Worcester, in the lower division of Doddingtree Hundred, and in the parish of Ribbesford, 114 miles N.W. from London, and 13 miles N. by W. from Worcester. The town was formerly within the jurisdiction of the marches of Wales. It was made part of the county of Worcester, by an act of parliament passed 34 and 35 Henry VIII. c. 26.: it had previously been put within the parish of Ribbesford, by a private act in the reign of Henry VI., having till then been extra-parochial. It stands on a declivity overhanging the western bank of the Severn, and from the pleasantness of its situation was called in Latin *Bellus locus*, and in French *Beaulieu*, from whence by corruption the present name of Bewdley is derived. In Domesday Book, Bewdley, there called Ribeford, is reckoned among the townships belonging to Kidderminster, and is said to be in the king's demesne. It was waste in the time of Edward the Confessor. In the reign of Edward I. it was a manor belonging to the Beauchamps, the first Norman earls of Warwick; it afterwards passed to the Mortimers, earls of March, and with the other lands of that earldom was annexed to the crown when Edward, earl of March, became king, under the title of Edward IV. In the 12th year of this king, Bewdley received its first charter of incorporation. After this the town seems to have increased in importance, and in the reign of Henry VIII. we find it thus noticed by Leland: 'The towne self is sett on the syde of an hill; soe comely, a man cannot wish to see a towne better. It riseth from Severne banke by east, upon the hill by west; soe that a man standing on the hill *trans pontem* by east, may discerne almost every house in the towne, and at the risinge of the sunne from the east, the whole towne glittereth (being all of new building) as it were of gould. By the distance of the parish church (at Ribbesford), I gather that Beaudley is a very new towne, and that of ould time there was but some poore hamlett, and that upon the building of a bridge there upon Severne, and resort of people unto it, and commodity of the pleasant site, men began to inhabit there; and because that the plott of it seemed fayre to the lookers, it hath a French name Beaudley, quasi *Bellus Locus*.'

The hill on the slope of which the town is built is called Ticken Hill, or more properly Ticcen Hill, or Goat's Hill, which name the town itself is said to have borne in the early period of its history. In Leland's time there was a fine manor-house on the top of the hill, which Henry VII. built as a residence for Prince Arthur, and which is said to have been the scene of the festivities attending his marriage with Catharine of Aragon, afterwards queen of Henry VIII. There appears to have been some previous building on the spot. That which Leland saw was nearly demolished in the civil wars, but was afterwards rebuilt, and forms a mansion, the commanding prospects from which are much admired.

Independently of its municipal contentions, there is no fact of any interest in the subsequent history of Bewdley, except that Charles I. removed hither from Worcester, in order to keep the Severn between him and the enemy. It does not appear from the corporation books that the town went to any larger expense than half a crown on the occasion of this visit.

The manor of Bewdley remained annexed to the crown through several reigns. In that of James I. it was held by the Prince of Wales. After that it went through several hands, and since the reign of Charles II. has been held by lessees from the crown.

The borough obtained a charter of incorporation in the third year of James I., by which it was to be governed by a bailiff and twelve capital burgesses, who were empowered to elect the other corporate officers, as high steward, recorder, and others of inferior rank. The town was also enabled to send one member to parliament, which it has ever since continued to do. Several accounts state that Bewdley had four annual fairs and two market days previously to this charter. Nash, however, states that Edward IV. granted fairs to be held on the feast days of St. George, St. Ann, and St. Andrew, and a market on Saturday. These are the same that are granted in the charter of James, and which are still in use. The history of the charter is curious. The corporation surrendered it to Charles II. and got a new one from James II., by which the borough was governed for twenty years. But when Queen Anne came to the throne this charter was declared, on account of some informality, to be void, and that of James I. was confirmed. The different charters being respectively upheld by contending parties in the borough, a double return of officers was the consequence; nor was the matter terminated without a long and expensive lawsuit, by which the old charter was confirmed. During the first thirty years of the present century the greatest number of electors polled at the election of a representative in Parliament did not exceed twenty-four, the bailiff and burgesses being the only electors; by the Reform Bill the limits of the borough were greatly enlarged for parliamentary purposes so as to include 484 qualifying tenements, of which the town alone contains 193. The population of the parliamentary borough is between 7000 and 8000; that of Bewdley proper was, in 1831, 3908, of whom 2021 were females. There is, however, on the other side of the Severn, connected with Bewdley by a bridge, the suburb of Wribbenhall, which, although not included in the municipal limits, appears to form part of the town. Its population is no where stated separately from that of the parish to which it belongs; but it contains thirty-five qualifying houses, and is thus noticed in the Boundary Reports:—'This suburb contains several good houses, also a large carpet manufactory, and some warehouses by the river side, which afford employment to the inhabitants of Bewdley.'

In its original state, as is the case with most old towns in this part of the kingdom, the buildings of Bewdley were of timber; but the principal street is now as well built and paved as any other in provincial towns of similar rank. There are three principal streets; that is, a street leads in a direct line from the bridge and then diverges to the right and left, so that the three together give a ground form, approximating to that of the letter Y, with its foot extending to the river. The chapel of ease was, like the rest of the town, of timber, when Leland was there; it was replaced in 1748 by the present structure, a neat stone building erected by subscription, and capable of containing 1200 persons. A large proportion of the inhabitants are Dissenters, for whom there are various places of worship. Bewdley being in the parish of Ribbesford, it has only a chapel of ease for the accommodation of the inhabitants. The living is a perpetual curacy in the diocese of Hereford, of which the rector of Ribbesford is patron. The last returns state the annual income at 100*l.* per annum.

The town-hall of Bewdley is a very commodious modern building of stone standing on three arches, which are furnished with handsome iron gates. The front is decorated with six square pilasters, which support a pediment. The arches underneath afford admittance to the market-place, which consists of two rows of stalls under arcades, with an open area in the centre, having altogether a very neat appearance. The stone bridge of three arches over the Severn, is a very handsome modern structure, guarded with balustrades.

A free grammar school was established at Bewdley under the charter granted to the town by King James. Some endowments had previously been made for the purpose, particularly by William Monnox, who gave 6*l.* per annum secured upon lands; and John, George, and Thomas Ballard gave the site of the school. The charter declared the object of the school to be, 'for the better education and instruction of young children and youths within the borough, liberties, and precincts, in good arts, learning, virtue, and instruction,' and that it should be called 'The Free Grammar School of King James of England in Bewdley.' The charge of its revenues was entrusted to the borough corporation, under the stipulation that they should apply them to no other use than to the benefit of the school; they were also to make written statutes for the government of the school, and to appoint the master and under-master, who were to enjoy their offices during the 'well liking of the said governors.' Numerous small additions have since been made to the endowments of the school, the revenues of which arise from a rent-charge on land at Shepperdine in Gloucestershire, chief rents, rents of houses in Bewdley, and the tolls of the market. The amount is uncertain. The master has a salary of 30*l.* and a house free of rent, taxes, and repairs. There is no under-master. 'The school' (remarks Carlisle in 1818) 'is open as a *free grammar school* to the children of all the inhabitants, but there are *none* at present upon the foundation. The master has about 30 boarders.' He adds, that no copy of the statutes is now extant. The master has charge of a collection of books given by the Rev. Thomas Wigan for the use of the clergy and laity of the neighbourhood. There is also in the town a school, supported by the corporation and inhabitants, which affords a plain education, with clothing, to thirty boys and as many girls.

The advantageous situation of Bewdley on the Severn formerly rendered it an intermediate station for the commerce between the ports of the Severn and the inland towns, and gave it a most flourishing carrying trade. Goods were then sent on the river from Bristol, Chepstow, and Newnham to this place, whence they were sent not only to the neighbouring towns, but to Manchester, Sheffield, and Kendal, by regularly established waggons, which returned laden with inland manufactures for exportation. A considerable carrying trade still exists; and the Boundary Report observes, 'The town of Bewdley can hardly be said to be in a state of decay, although the changes in the internal navigation of the country have deprived it of its former commercial importance. Its market, its retail trade with the surrounding country, its situation on the Severn, and some small manufactures, afford employment to its population, in which may be reckoned a considerable number of respectable inhabitants.' (Leland's *Itinerary*; Nash's *Collections for the History of Worcestershire*; *Beauties of England and Wales*, vol. xv.; *Boundary Reports*, vol. iii. pt. 2.; Carlisle's *Endowed Grammar Schools, &c.*)

BEX, a small but pleasant town, of the canton of Vaud in Switzerland, situated near the right bank of the Rhone, twelve miles above its entrance into the Leman lake, and about two miles north of St. Maurice in the Valais. It lies in a fine and fertile valley, at the foot of the high mountains called La Dent de Morcles, and Les Diablerets, which rise to nearly 9000 feet above the sea. Bex is on the high road from Bern and Lausanne to the Valais, which road joins at St. Maurice the great road from Geneva to Italy by the Simplon. Bex is much frequented by travellers in the summer months, and has one of the best inns in Switzerland. The country about Bex is one of the most interesting in Switzerland for the botanist, the mineralogist, and the geologist. At a short distance from Bex, and near the village of Lavey, a hot mineral spring was discovered in 1832, on the banks of the river Rhone, having, it is said, the same properties as the celebrated waters of Loesch in the Valais. Temporary baths have been erected at the expense of the government of Vaud, which are much frequented by invalids during summer. (Walsh, *Voyage en Suisse.*) Bex derives much of its importance from the deposit of salt in its neighbourhood, and is the only place where it is worked in Switzerland. Various salt springs issuing from a neighbouring mountain first indicated the existence of the salt, and the government of Bern, to which Bex then belonged, undertook to work it. Several galleries were excavated in the mountain in order to reach the deposit of salt, but the attempt was not successful, and the principal way in which salt is still extracted is by boiling the water. (See Cox's *Letters on Switzerland*, where he gives an account of the process.) One of the galleries is 4000 feet long, eight feet high, and six wide. The water of the springs is carried by pipes to Bevieux, where are the filters, boilers, and other apparatus for extracting the salt. In 1824 a part of the mountain was discovered which is strongly impregnated with salt, in consequence of which the quantity of salt extracted yearly has been increasing, and is now double what it was formerly. Still the salt collected at Bex does not supply more than 1-25th of the population of Switzerland. In 1825 the net revenue resulting to the state of Vaud from the salt-works amounted to 52,000 Swiss francs, equal to 78,000 French francs. (Franscini, *Statistica della Svizzera.*) The establishment of these salt-works is conducted with the greatest order and economy. Salt exists also in the canton of Aargau, in that of Appenzell, and in the Grisons at Schuol in the Lower Engadina, but it is not worked.

BEY. [See Beg.]

BEY'RA, or **BEI'RÁ** a province of Portugal, situated between 39° 28′ and 41° 20′ N. lat., and 6° 52′ and 8° 46′ W. long. It is bounded on the north by the provinces of Entre-Douro-e-Minho and Tras-os-Montes, from which it is separated by the river Douro; on the south and south-west by Alentejo and Portuguese Estremadura, the Tagus and the Serra de Louzaõ forming its natural boundaries; on the east by Leon and Spanish Estremadura, from which it is separated by the rivers Turones and Elgas and the Sierra de Gata; on the west it is bounded by the ocean. The length of its sea-coast is about eighty miles. The province is divided into three parts. That portion comprised between the river Douro and the Serra de Estrella is called High Beyra; from this mountain-range to the banks of the Tagus, Low Beyra; and the western part of the province, between the ocean and the Serra de Alcoba, is denominated Beyra Mar or Maritime Beira.

Two chains of mountains running nearly parallel to one another cross the province from north-east to south-west. The principal and most eastern is the Serra de Estrella, Mons Herminius of the antients, which, according to some geographers, is the western branch of the chain denominated Carpeto-Vettonic, or Carpetano-Vettonique, extending along the right bank of the Tagus from its source to its entrance into the sea. The Serra de Estrella, which in some parts is 7524 feet above the level of the ocean, and is covered with snow in some points during the greatest part of the year, crosses the province from north-east to south-west, enters Estremadura, where it takes the names of Serra-de-Louzaõ and Serra-de-Junto, and terminates on the ocean near Torres Vedras. On the highest part of this Serra is a plain nine miles long and three wide, covered with snow till the month of June. On this plain there are several lakes, of which some of the Portuguese geographers relate many wonderful stories. According to their accounts these lakes are bottomless, and in some of them masts of ships have been found. The lakes, however, are nothing more than great reservoirs in which the melted snow is collected, and from which several streams of the province spring. The Serra de Estrella is chiefly composed of a greyish granite, the surface of which is easily decomposed by the action of the air. In the interior of this greyish granite are found round blocks of a harder kind and a darker colour, of the size of the largest cannon ball. The other chain of this province is the Serra de Alcoba, which, commencing at the banks of the Douro, runs south-westward along the right bank of the Mondego and terminates on the sea-shore at the mouth of that river, forming Cape Mondego: between this range and the Serra de Estrella is the beautiful valley to which the Mondego gives its name. The highest point of the Serra de Alcoba, called Cabeça de Caõ or Dogs-head, is 1758 feet above the level of the sea. Cape Mondego has an elevation of 696 feet. From these two principal chains smaller ones branch out in different directions, occupying the greatest part of High Beyra. All these high lands are almost without trees, and only produce pasture for cattle and food for small game.

The principal rivers of Beyra proceeding from east to west are the Elgas, the Aravil, the Ponsul, the Vereza, and the Zezere, all which flow southward into the Tagus. The Turones (which is joined by the Agueda), the Coa (which is fed by the Pinhel and the Lamegal), the Tavora, and the Pavia, flow northwards into the Douro. The Mondego springs in the Lago Escura in the Serra de Estrella, flows to the north-west as far as Fornos, where it bends to the south-west, and leaving Coimbra on its left bank falls into the Atlantic at Figueira: its whole course may be about 100 miles. The Vouga crosses and fertilizes the north-western districts of Viseu and Aveiro. [See AVEIRO.] Except the Mondego, the Zezere, and the Vouga, the rivers of Beyra are very inconsiderable, though none are dry in summer: they all abound in delicate fish.

The general character of this province is very hilly. The valleys are fertile, and produce wheat, Indian corn, rye, wine, and fruit. The valley which is watered by the Mondego is one of the most fertile and picturesque in the province, abounding in lemon and orange trees: the hills which enclose the valley are crowned with vines, and fig and other fruit trees; indeed, in all Portugal there is scarcely a view so splendid as that which the province of Beyra presents when it first opens to the traveller coming from Estremadura, from the heights north of Condeixa. The valley of the Mondego is also seen to great advantage from the observatory of Coimbra. The honey of Beyra is celebrated through Portugal, and the fish of its coast are also in high repute. Both in the mountains and valleys small game is found in abundance. The western and southern parts of the province are very productive, but in the mountainous districts the products are scarcely sufficient for the support of its inhabitants, many of whom resort to Lisbon, where they employ themselves as carriers and in other menial occupations.

The greatest breadth of the province from east to west is about 120 miles, and the greatest length from north to south about the same. Antillon gives it an area of 753 Spanish square leagues of twenty to a linear degree, and a population of 1,121,595 souls.

For the civil government, the province is divided into eleven comarcas, or districts, viz., on the west, Coimbra, the capital, which comprises 150 parishes; Aveiro, with 99; Feira, on the north-west, with 75; Lamego, on the north, with 152; Viseu with 206; Trancoso, nearly in the centre to the east of Viseu, with 199; Pinhel, between Almeida and Castel Rodrigo, with 39; La Guarda, to the south-west of Pinhel, with 190; Linhares, to the west of La Guarda, with 41; Lagos, on the left bank of the Alva, an affluent of the Mondego, with 49; and Castello Branco, in the south of the province, with 97. The ecclesiastical division of the province is into seven bishopricks,—Coimbra, Aveiro, Viseu, Lamego, Pinhel, La Guarda, and Castello Branco. The principal military stations are Castel Rodrigo and Almeida, the latter being the chief fortification of the province, and about twenty-three miles from Ciudad Rodrigo in Spain.

The inhabitants of Beyra are chiefly employed in agriculture, and on the coast in fishing and commerce. There are, however, some manufactories of cloth, hats, and other articles of dress at Coimbra, which town is also the seat of the only Portuguese University.

(See the *Map* of the Society for the Diffusion of Useful Knowledge; Antillon; Bory de St. Vincent, *Résumé Géographique de la Peninsule Iberique*, Paris, 1827; Miñano, &c.)

BEZA, an eminent theologian of the Calvinistic branch of the reformed church. He is commonly known by the Latinized name of Beza, but his real name was Théodore de Bèze. He was a Frenchman, born of noble parents, in 1519, at Vezelai, a small town of which his father was *Bailli*, in the district of the Nivernais, or, according to modern divisions, in the department of Yonne. As soon as he was weaned he was sent to Paris, and placed under the care of an uncle, Nicolas de Bèze, who held the office of *Conseiller*, or judge, to the parliament of Paris. The cause of this early separation from his parents does not appear. This uncle brought him up tenderly, and before he was ten years old placed him under the care of Melchior Wolmar, a learned German, resident at Orleans, who was especially skilled in the Greek language. On Wolmar being appointed to a professorship in the university of Bourges, Beza accompanied him, and remained, in the whole, for seven years under his tuition. During this time he became an excellent scholar, and he afterwards acknowledged a deeper obligation to his tutor, for having 'imbued him with the knowledge of true piety, drawn from the limpid fountain of the word of God.' In 1535 Wolmar returned to Germany, and Beza repaired to Orleans to study law; but his attention was chiefly directed to the classics and the composition of verses. His Latin verses, published in 1548, and dedicated to Wolmar, were chiefly written during this period of his life: we shall have to speak of them hereafter.

Beza obtained his degree as licentiate of civil law when he had just completed his twentieth year, upon which he went to Paris, where he spent nine years. He was young, and possessed of a handsome person and of ample means; for though not in the priesthood, he enjoyed the proceeds of two good benefices, amounting, he says, to 700 golden crowns a-year. The death of an elder brother added considerably to his income, and an uncle, who was abbot of Froidmond, expressed an intention of resigning that preferment, valued at 15,000 livres yearly, in his favour. Under such circumstances, in a city like Paris, he was exposed to strong temptation; and his conduct during this part of his life has incurred great censure. We shall give first his own account of it, in his letter to Wolmar, and then a short notice of the statements of his enemies. He acknowledges in the most open manner that, 'being better provided with temporal advantages than with wisdom,' and attracted by the splendour and pleasures of the world, he was driven about without any fixed principle; and though his conscience bade him profess the reformed religion, yet, partly from fear of giving offence, partly, as he candidly says, 'because, like an unclean dog at a greasy hide, I was not yet frighted from that iniquitous profit which I derived from church property,' he continued externally to conform to the dominant church. That his life was grossly immoral he denies; and as a preservative from immorality, he formed a private marriage with, or rather engaged to marry, a woman of birth, he says, inferior to his own, but possessed of such virtue that he never found reason to repent of the connexion. It was covenanted that he should marry her publicly as soon as the obstacles to that step should be removed, and that in the mean time he should not take orders, a thing entirely inconsistent with taking a wife. Meanwhile his relations pressed him to adopt some 'certain method of life,' or, in other words, to enter into the church: his wife and his conscience bade him avow his marriage and his real belief; his inclination bade him conceal both and stick to the rich benefices which he enjoyed; and in this divided state of mind he remained till a serious illness brought him to a more manly and a more holy temper. Immediately on his recovery he fled to Geneva, at the end of October, 1548, and there publicly solemnized his marriage and avowed his faith.

In after times, when Beza became a leader among the reformers, and a zealous and formidable controversialist, he was charged with having been addicted to the most revolting licentiousness during this part of his life; and it was said that he fled to Geneva to escape from a prosecution instituted against him in Paris. To rake into the dirt of past ages is neither pleasant nor profitable; and we shall confine ourselves to expressing our full concurrence with the conclusion of Bayle (art. 'Bèze,' note U), that as the charges against Beza rest solely on assertion, which is met by denial, as the gravest of them were of such nature that they might readily have been supported by evidence, and as no evidence in support of them was ever given, it is fair to conclude that they were altogether calumnious. The charge of general licentiousness has been supported by reference to the indecency of some of his early poems published at Paris in 1548, in his 'Juvenilia,' which his enemies justly alleged to be inconsistent with the character of a reformer and father of the church. This offence, which Beza never sought to extenuate, is a grave one, but it affords no ground for casting the imputation of hypocrisy, or any other, on his subsequent life. During his residence in Paris, by his own acknowledgment, though he might have a speculative preference for the reformed religion, he had no ruling sense of religion at all. When he became earnest in his religion, he repented of his indecency; and both by public avowals of his contrition, and by endeavouring to suppress the offensive verses, he made such amends as he could for his offence against morality. But what can be said in defence of those who indulged in the most violent invective against Beza for having composed such poems, and then republished them again and again to bring the author into contempt and odium?

After a very short residence at Geneva, and subsequently at Tübingen, Beza was appointed Greek professor of the college of Lausanne. During his residence here, he took every opportunity of going to Geneva to hear Calvin preach, at whose suggestion he undertook to complete Clement Marot's translation of the Psalms into French verse. Marot had translated fifty, so that one hundred Psalms remained: these were first printed in France with the royal license in 1561. Beza, at this time, employed his pen in support of the right of punishing heresy by the civil power: his treatise, *De Hæreticis a Civili Magistratu puniendis*, is in defence of the execution of Servetus at Geneva in 1553. Beza was not singular in maintaining this doctrine: the principal churches of Switzerland, and even Melancthon, concurred in justifying, by their authority, that act which has been so fruitful of reproach against the party by whom it was perpetrated. The persecuted party, be it which it might, was ready enough to complain, and to persecute when its turn came round. The reformers, after rejecting opinions which had been long received as fundamental truths, were determined not to allow others the same liberty which they had taken themselves. His work *De Jure Magistratuum*, published at a much later time in his life (about 1572), presents a curious contrast to the work *De Hæreticis*, &c. In this later work he asserted the principles of civil and religious liberty, and the rights of conscience: but though he may be considered as before most men of his age in the boldness of his opinions as to the nature of civil authority, his views of the sovereign power, as exhibited in this work, are confused and contradictory. During his residence at Lausanne, Beza published several controversial treatises, which his friend, colleague, and biographer, Antoine La Faye, confesses to be written with a freer pen than was consistent with the gravity of the subject. Some Lutheran writers attack, in the most violent and insulting language, the grossness displayed in these works. That there was some ground for the charge we may collect from La Faye's declaration, that the author expunged the obnoxious passages in subsequent editions; and perhaps it is no wonder that a lively and humorous temper, not trained in the purest of schools at Paris, should have required a long course of discipline to be brought under habitual and complete control. To this portion of Beza's life belongs the translation of the New Testament into Latin, completed in 1556, and printed at Paris by R. Stephens in 1557. The best edition is said to be that of Cambridge, 1642. It contains the commentary of Camerarius, as well as a copious body of notes by the translator himself.

After ten years' residence at Lausanne, Beza removed to Geneva in 1559. The admiration which he already felt for Calvin was greatly increased by closer intimacy; 'he seldom quitted him, and in his society made great progress both in matters of doctrine and of church discipline.' (La Faye, p. 19.) About this time he entered into holy orders. At Calvin's request he was admitted to be a citizen of Geneva; he was appointed to assist that remarkable man in giving lectures in theology; and on the academy or university of Geneva being founded by the legislature, he was appointed rector, upon Calvin's declining that office. It seems to have been in the same year that, at the request of some leading nobles among the French Protestants, he undertook a journey to Nerac, in hope of winning the king of Navarre to Protestantism, or at least of inducing him to interfere in mitigation of the persecution to which the French Protestants were then exposed. His preaching was successful; and he remained at Nerac until the beginning of 1561, and at the king of Navarre's request attended the conference of Poissy, opened in August of that year, in the hope of effecting a reconciliation between the Catholic and Protestant churches of France. Beza was the chief speaker in behalf of the latter, and though certain of his expressions were violently excepted to, he seems on the whole to have managed his cause with temper and ability; and to have made a favourable impression on both Catherine of Medicis and Cardinal Lorrain. (See La Faye, pp. 28-40; and De Thou, *Thuani Historia*, lib. 28, pp. 40, 48, vol. ii. Genev. 1620.)

Catherine requested him to remain in France, on the plea that his presence would tend to maintain tranquillity, and that his native country had the best title to his services. He consented; and after the promulgation of the edict of January, 1562, often preached publicly in the suburbs of Paris. The short-lived triumph of toleration was ended by the massacre of Vassy, and the civil war which ensued. [See L'Hôpital.] During that contest, which closed in March, 1563, Beza attached himself to the person of Condé, at that prince's earnest request. He was present at the battle of Dreux, where Condé was taken prisoner; but not as a combatant, as he positively asserts in his answer to his calumniator, Claude de Xaintes. We may here notice the accusation brought against him of having been concerned in plotting the murder of the Duke of Guise in 1563, founded on the confession of the murderer Poltrot: but Poltrot retracted this accusation, and, to the hour of his death, asserted the innocence of Beza.

At the end of the war Beza returned to Geneva. In 1564 he was appointed teacher of theology, on the death of Calvin, whose labours he had shared, and with whom he had lived in strict union and friendship. He then took an assistant, as Calvin had taken him: at a later period Antoine La Faye filled that office. From the number of treatises which Beza wrote during a few years after his return to Geneva, we may judge that he returned with avidity from the interruption of war to his studies, and to the work of controversy. He succeeded not only to the place, but to the influence of Calvin, and from thenceforth was regarded as the head and leader of the Genevese church. In 1571 he was requested to attend the general synod of French Protestants held at Rochelle; and he was elected moderator or president of that assembly, by which the confession of faith of the Gallican church was settled. In 1572 he was again requested to attend a synod held at Nismes, where he opposed successfully a new form of church discipline, which Jean Morel attempted to introduce. In the course of his life, Beza was engaged in several other conferences, which, as they produced no important results, it is not necessary to give any account of.

After the massacre of St. Bartholomew, in 1572, Beza showed himself prompt to succour the distressed Protestants who flocked to Geneva. He supported, according to La Faye, fifty clergymen, who were among them, for three years, chiefly by his exertions in raising subscriptions in their behalf in England, Germany, and France.

In 1575 began Beza's correspondence with the lord chancellor of Scotland on the subject of church polity. At that time the code of Scots ecclesiastical law, called the *Second Book of Discipline*, was in course of framing; and the lord chancellor, who saw and feared the destruction of the spiritual estate in parliament by the settlement of Presbyterianism, entered on an epistolary correspondence with Beza on the subject. Beza answered the queries submitted to him, and the treatise which he composed on the occasion having been printed, and soon after translated, the authority of his name and the force of his arguments had great influence on the public mind.

His first wife died in 1588. In the course of a few months he took a second wife, a young widow, to whose care his declining years were indebted for much comfort. He scarcely manifested the infirmities of age until 1597, when he was obliged on more than one occasion to quit the pulpit, leaving his sermon incomplete. In the autumn of 1598 he ceased to attend the schools. He preached for the last time, January 13, 1600. The Jesuits in 1597 spread a report of his death, with the addition that he had reconciled himself to the Papal Church. He retorted in two satiric copies of verses, one directed against the order in general, the other against the person with whom the lie was believed to have originated. La Faye records a pleasing instance of attention on the part of his brother clergymen of Geneva. Towards the close of his life two of them at least waited upon him every day; and at times the whole body paid him that token of respect. He declined gradually under the weight of years, but excepting the partial loss of memory in respect of recent occurrences, he retained his intellect unclouded to the last. He died October 13, 1605. An interesting account of his last moments is given by La Faye.

Beza was a man of undoubted learning, talent, and zeal for the interests of the church to which he belonged. His eminence is testified by the virulence with which he has been attacked both by Roman Catholic and Lutheran divines. Of the charges brought against his conduct in youth we have already expressed our opinion; and it does not appear that his life and conversation, from the time of his avowed conversion, were open to any charges, except that of having used an unseemly levity in some of his first controversial works, which, as we have seen, was coupled by his enemies with other accusations, to prove that he was a man of loose and profligate character. His writings are now nearly forgotten: in addition to those which we have specified, we may add his 'Confession of the Christian Faith,' 1560, written, it is said, to justify himself, and in hope of converting his father; and his 'Ecclesiastical History of the Reformed Churches of France, from 1521 to 1563,' 1580. He also wrote a 'Life of Calvin.' La Faye has given a list of Beza's works, which are fifty-nine in number. (Antonius Favus, *De Vita et Obitu Bezæ*; Bayle.)

BEZA'S CODEX, a celebrated manuscript, containing the Four Gospels and Acts of the Apostles written in Greek, with a corresponding Latin text on every opposite page. Of the Greek text we shall speak more particularly presently. The Latin version is believed to be the *Vetus Italica*, the old Italic, before it was corrected by St. Jerom.

This singular manuscript was presented to the University of Cambridge by Theodore Beza in the year 1581, whence it has its name of *Codex Bezæ*, and is sometimes cited as *Codex Cantabrigiensis*. It is a thick quarto volume, written upon vellum, in uncial letters of the square form, that is, in large capitals quadrated, as distinguished from the sharper uncials. The letters, in some places, particularly in the beginning of the first leaf, are scarcely legible. The gospels are placed in the usual order of the Latin manuscripts,—Matthew, John, Luke, Mark. This codex has no stops, marks of aspiration, or accents.

There are various chasms in this manuscript, which, both in the Greek and Latin texts, have been supplied at later periods. The defective passages in the Greek are Matthew i. *v.* 1 to 20, vi. *v.* 20, to ix. *v.* 2: xxvii. *v.* 2 to 12; John i. *v.* 16 to iii. *v.* 26; Acts, viii. *v.* 29 to x. 14; xxi. *v.* 2 to 10, and 15 to 19; xxii. *v.* 10 to 20; lastly, xxii. 29 to the end of the MS. In the Latin version the chasms are Matthew i. *v.* 1 to 12; from *v.* 8 in chap. vi. to viii. 27; from xxvi. 65 to xxvii. 2; from John i. 1 to iii. 16; Acts viii. 19 to x. 4; xx. 31 to xxi. 3, and 7 to 11; xxii. 2 to 10; and lastly, from Acts xxii. 20 to the end.

In the year 1787, immediately after the appearance of the New Testament of the Alexandrian Manuscript, published by Dr. C. G. Woidè, the University of Cambridge appointed Dr. Thomas Kipling, late fellow of St. John's College, and Deputy Regius Professor of Divinity, to edit this their highly-prized manuscript in fac-simile: that is, as far as metal types could be made to represent it, for a real absolute fac-simile can be obtained only by engraving. It appeared in 1793 in two volumes folio, edited with fidelity, accompanied by a preface of twenty-eight pages, and followed by twenty-four pages of notes, entitled *Codex Theodori Bezæ Cantabrigiensis, Evangelia et Apostolorum Acta complectens, quadratis literis, Græco-Latinus: Academia auspicante, venerandæ has vetustatis reliquias, summa qua potuit fide, adumbravit, expressit, edidit, Codicis historiam præfixit, notasque adjecit Thomas Kipling, S.T.P. Coll. Div. Joan. nuper socius.*

Dr. Kipling, in his preface, endeavours 1st, to establish the high antiquity of his MS.; 2dly, he points out its peculiar character and excellence; 3dly, he traces its migrations; and lastly, he describes its form.

It is allowed by all palæographists that Beza's MS. is one of the most antient of its kind. Those who give it the least antiquity, assign it to the sixth or seventh century. Wetstein and J. D. Michaelis deem it much older; and Dr. Kipling is of opinion that it is more antient than the Alexandrian MS., and must have been written in the second century. His conjecture is founded on these circumstances, that it wants the doxology at the end of the Lord's Prayer, and has the Ammonian sections without the Eusebian canons. That the doxology is an interpolation there can be little doubt; but that the want of it in a MS. is a proof of the high antiquity of that MS. cannot so readily be admitted. If the writer of Beza's MS. were a Latinist, he might leave out the doxology in his Greek copy, because it was not in his Latin copy; or his Greek copy might have been one of those which wanted the doxology. The argument derived from the entire omission of the Eusebian canons, and from the Ammonian sections being added by a posterior writer, is more specious. Dr. Kipling hence infers that the text of the MS. was written antecedently to the date of the Ammonian sections, and these before the Eusebian canons appeared. Ammonius lived in the third, Eusebius in the fourth century: the Ammonian sections in Beza's MS. are much posterior to the text, and are without the canons of Eusebius; therefore he considers it highly probable that those sections were added to the MS. before the *fourth*, and that the manuscript itself was written before the *third* century.

As to the nature and excellence of the Beza manuscript great diversity of opinion subsists. Antony Arnauld (*Dissertation Critique touchant les Exemplaires, sur lesquels M. Simon pretend que*, &c., 8vo. Col. 1691) insisted that it was a forgery of the sixth century, and therefore unworthy of credit; and his chief argument was, that it has certain additions or interpolations which are not found in the copies anterior to that period; such as that in Matthew xx. 28, *ὑμεῖς δὲ ζητεῖτε*, &c.; that in Luke vi. 5, *τῇ αὐτῇ ἡμέρᾳ*, &c. This reasoning would be solid, if the assumption were just; namely, that these and similar interpolations were not found in any other MS. before the sixth century. Dr. Kipling draws from the same circumstance a very different conclusion: he thinks that the aforesaid additions are proofs that either the Beza MS., or its archetype, must have been written before Jerom corrected the text of the New Testament, because they are not in his version. Bengel supposes this MS. to be of British origin from its great conformity with the Anglo-Saxon version, and to have been reformed, or rather corrupted, according to the Italic version. To this argument it is answered, that the Beza MS. resembles the Syriac version as much as it does the Italic and Anglo-Saxon. Michaelis, in his account 'of the manuscripts that have been used in editions of the Greek Testament' (*Introd. to the New Test.* 8vo. Cambr. 1793, vol. ii. p. i. pp. 228, 229) is of this opinion, in which he is corroborated by Professor Storr, who, in the eighth section of his *Observationes super Novi Testamenti Versionibus Syriacis*, produces various examples in which the Syriac version coincides with the Codex Cantabrigiensis, and at last conjectures that the latter has, in some cases, been improperly altered from the former, through a mistake of the Syriac text. (See Michaelis, *ut supr.* p. 231.)

In noticing what Dr. Kipling calls the 'migrationes,' or peregrinations of the Codex Bezæ, he gives it as his opinion, from internal evidence, that it was written in Egypt: others have been persuaded that it was written in the West, not by a Greek, but by a Latinist. By what means this manuscript passed to France is unknown. Beza, who presented it to the University of Cambridge, had himself received it about nineteen years before. He states it to have been found in the Monastery of St. Irenæus at Lyons. Beza was at that time resident at Geneva. It has been supposed by some critics to be the manuscript which was produced in the Council of Trent in 1546 by the bishop of Clermont, and which Drathmurus mentions four hundred years before that council; but this is mere conjecture, and scarcely amounts to a probability. (See Dr. Kipling's *Preface*; *Monthly Review* for Nov., 1793; *Cantabrigiana*, in the *Monthly Mag.*, vol. xv. p. 535; and J. D. Michaelis, *ut supra.*)

BEZANT, a gold coin struck at Constantinople by the emperors of that city, antiently called Byzantium. William of Malmesbury says expressly, 'Constantinopolis primum Byzantium dicta. Formam antiqui vocabuli præferunt imperatorii nummi Bizantini vocati.' (*Script. post Bedam*, edit. Saville, fol. 76 b.) This coin was called Byzant, Besans, Bezantus, Byzantius, Byzantinus, Byzanteus, and Bixantius; and from the ninth to the fourteenth century was the chief gold coin in currency through Europe.

The Moors of Spain stamped also a gold coin called Byzantius Massamutinus. There was likewise the Byzantius Saracenatus, or Saracenicus, struck by the sultans of Iconium in Lesser Asia; and Byzantii Melechini, so called from being coined at Malines in Flanders.

These Bezants were not always of the same weight, fineness, or value, since we find them described as *aurei Byzantii; aurei boni Byzantii;* and *auri optimi Byzantii.* Ducange quotes this last expression from a charter of the year 915. (Apud Ughellum, tom. i. pp. 853, 960.)

Byzantii albi, seu argentei, white or silver Bezants, also occur in the *Constitutiones Odonis legati Apost. in Cypro, an.* 1248. Ducange quotes a charter of 1399, which speaks of white Bezants of Cyprus. They likewise occur in a bull of Pope Gregory IX. (Apud Ughellum, tom. vii. p. 60.)

The Moorish Bezants are sometimes called in old writers Marabotini, or Maurabotini. They are mentioned by this name in Matthew Paris, A.D. 1176. (*Hist. Major*, edit. 1684, p. 110.) See also Ralph de Diceto under the year 1177. (*Script.* x. Twysd. col. 598.) From Ducange we learn that 'Morabotini boni Alfonsini, auri fini et ponderis recti,' frequently occur in Aragonese charters towards the close of the thirteenth century.

Camden, in his *Remains concerning Britain* (edit. 8vo. Lond. 1674, p. 235), noticing the coined and other money in use among our Saxon ancestors, says, 'Gold they had also, which was not of their own coin, but outlandish, which they called in Latin Bizantini, as coined at Constantinople sometimes called Bizantium, and not at Besançon in Burgundy. This coin is not now known, but Dunstan, archbishop of Canterbury (as it is in the authentical deed), purchased Hendon in Middlesex of King Edgar to Westminster for two hundred Bizantines. Of what value they were was utterly forgotten in the time of King Edward III.; for, whereas the bishop of Norwich was condemned to pay a Bizantine of gold to the abbot of St. Edmundsbury for encroaching upon his liberty (as it was enacted by parliament in the time of the Conqueror), no man then living could tell how much that was, so as it was referred to the king to rate how much he should pay.'

In Domesday Book no mention whatever occurs of the Bezant; but it occurs twice as a denomination of money in the Winton Domesday of the year 1148, and several times in the Boldon Book, a survey of the palatinate of Durham made in 1183; both printed among the *Supplementary Records* to the Great Domesday. The monks of Oseney, in consideration of the manor of Hampton-Gay in Oxfordshire, in the 6th of King Stephen, gave ten marks of silver to Robert de Gait, and one Bezantine to his wife. (Kennet's *Parochial Antiquities of Oxfordshire*, edit. 1695, p. 97.) Madox, in his *History of the Exchequer*, says, that in Henry II.'s time, Cressalin, the Jew of Winchester, was amerced one hundred marks, and he paid, instead thereof, one hundred Bezants, which were accepted by the king, *mera gratiâ.* (*Mag. Rot.* Henry II. rot. 10, art. 'Sudhantescira.') Madox also says (*History of the Exchequer*, p. 711), that in the 17th year of King John, 10*s.* of Venetian money, and two Bezants, were used at the Exchequer for counters: the Venetian shillings valued at 15*s.* and the two Bezants at 3*s.* 6*d.* These of course were silver bezants. From the narrative of William de Braose's treasons (recorded in the Black and Red Book of the Exchequer) against King John, it is clear that silver Bezants were in use in that reign; for when Maud, Braose's wife, was to make the first payment of a fine of 40,000 marks, which she and her husband had consented to pay on being restored to the king's favour, she told the justiciary, and the rest who were sent to distrain upon their goods, that they must expect nothing, she having no more money in her purse than twenty-four marks of silver, twenty-four shillings of Bezants, and fifteen ounces of gold. (See Dugdale's *Baron.* tom. i. pp. 416, 417.) John of Glaston in his *Chronicle* (vol. i. p. 224) informs us that Michael, abbot of Glastonbury, dying A.D. 1253, left to his successor 'quadraginta Bisancios et viginti libras sterlingorum.' Chaucer names the 'Besaunt' in the *Romaunt of the Rose* (*Works*, edit. 1542, fol. cxxxiii.), and Wickliffe, in his translation of the *New Testament* (Luke, chap. xv. v. 8, 9), uses the term 'Besauntis' for the ten pieces of money in the parable.

The probability seems to be that the Bezant of gold was current in England, if not from the ninth certainly, from the tenth century till the time of Edward III., when the coinage of the English noble drove it out of use.

The Constantinopolitan Bezant was the coin which we still see in our cabinets in gold; in the form of an umbo or hollow dish, frequently bearing the portrait of our Saviour. The weight of one of those of Alexius Comnenus I., who reigned from 1081 to 1118, is seventy grains. The Moorish Bezants were flat. The Constantinopolitan Bezant seems to have been generally of about the value of a ducat, or nine shillings. The name was probably given in the middle ages to the gold coins of most countries. Cotgrave says that Henry II. of France coined Bezants.

The white, or silver Bezant, in the 16th year of Stephen, according to an instrument quoted in Kennet's *Parochial Antiquities*, edit. 1695, p. 10, was of the value of 2*s.* No silver bezant is at present known to exist, at least under that denomination, in the cabinets of our collectors: but Constantinopolitan coins of silver, of the same size and form with the gold bezants, are found in cabinets, of the twelfth and later centuries: they usually weigh about forty or forty-three grains.

Banduri and other writers call both the gold and silver coins of Constantinople which we have described, *Nummi Scyphati.*

Camden (*Remains*, p. 236) says, that in the court of England, the piece of gold valued at 15*l.*, which the king was antiently accustomed to offer on high festival days, was called a Bizantine: 'which, antiently, was a piece of gold coined by the emperors of Constantinople; but, afterward, there were two,' probably meaning bars, 'purposely made for the king and queen, with the resemblance of the Trinity, inscribed, "In honorem sanctæ Trinitatis," and on the other side the picture of the Virgin Mary, with "In honorem sanctæ Mariæ Virginis;" and this was used till the first year of King James, who, upon just reason, caused two to be new cast, the one for himself, having on the one side the picture of a king kneeling before an altar, with four crowns before him, implying his four kingdoms, and in the circumscription, "Quid retribuam Domino pro omnibus quæ tribuit mihi?" On the other side a lamb lying by a lion, with "Cor contritum et humiliatum non despiciet Deus." And in another for the queen, a crown protected by a cherubim, over that an eye, and "Deus" in a cloud, with "Teget alâ summus;" on the reverse a queen kneeling before an altar, with this circumscription, "Piis precibus fervente fide humili obsequio."'

By the treaty for the deliverance of the French king St. Louis, and the other prisoners made at the battle of Mansoura and elsewhere, between the commissioners of his majesty and the sultan of Babylon, it was agreed that the king should pay to the sultan 10,000 gold Bezants, which were then worth, according to the recital of the Sieur de Joinville, 500,000 livres. The sultan afterwards reduced his demand to 800 Saracen gold Bezants. (See Johnes's *Memoirs of John Lord de Joinville*, vol. ii. Dissert. xx. p. 167.)

BEZANT represents in heraldry the round pieces of gold already described, by which the stipends of the higher soldiers of the army in the holy wars are supposed to have been paid. They are, with us, always emblazoned gold, but the foreign heralds make them both gold and silver.

BEZIERS, or BESIERS, a town in France in the department of Herault. It stands on a hill at the foot of which flows the river Orb, which is joined close to the town by the great Canal du Midi or du Languedoc. It is 480 miles S. or S. by E. of Paris through Clermont, Mende, Anduze, and Montpellier; in 43° 21′ N. lat. and 3° 13′ E. long. from Greenwich.

This town existed at the time of the Roman dominion in the south of France, and was one of the early colonies of that people. The veterans of the seventh legion were settled here; and hence, in addition to its own name, which is variously written *Bæterræ, Beterræ, Biterræ*, it acquired the designation of *Septimanorum.* Upon the downfall of the Western Empire in the fifth century it fell into the hands of the Visigoths, by whom it was much injured. It revived, however, and was retained by them till the overthrow of their kingdom. When the Saracens overran the south of France in the eighth century Béziers was taken by them, and from them by Charles Martel, who dismantled the fortifications. Again recovering from the disasters of war, the town flourished under the Carlovingian kings of France, and in the tenth century it had viscounts of its own, who, however, admitted the bishops of Béziers to a part of the temporal jurisdiction of the city. These viscounts were vassals of the counts of Barcelona, who became in course of time kings of Aragon.

In the thirteenth century Béziers attained the height of its prosperity, though it had suffered severely in the preceding century in a quarrel between the townspeople and their viscounts. When the opinions of the Albigenses spread they were embraced by many of the people of Béziers; and when the crusade against that unhappy sect took place, this town was one of those on which the storm of fanatic persecution fell. In 1209 it was attacked by the Catholic army, and after a valiant resistance was carried by assault, and the capture was succeeded by a general massacre. It was on this occasion that Arnaud, abbot of Cîteaux, legate of the pope, being asked by his comrades among the besiegers how they should know the Catholics, replied—'Kill all—God will know his own.'

Within a few years of this calamity, the remainder of the former inhabitants who had escaped by flight, or had been absent at the time of the assault, recommenced building the town; it rose again from its ruins, and was in 1247 ceded by the last Viscount to St. Louis, King of France. But the wars of England and France, in the fourteenth century, brought new disasters: the fortifications were ruined, and repaired, and ruined again. In the religious wars of the sixteenth century, Béziers was again involved; and in the reign of Louis XIII., having embraced the party of his brother Gaston, duke of Orléans, it fell into the hands of the king, who ordered the citadel to be demolished. (Malte-Brun; Expilly, *Dictionnaire des Gaules*.)

The situation of this town is of almost unequalled beauty. From the hill on which it is situated the view extends over a valley where the pale leaf of the olive mingles with the massive verdure of the mulberry. Orchards, gardens, and vineyards, interspersed with country houses, extend along the banks of the Orb. On another side, eight or nine locks of the Canal du Midi rise successively one above the other, and form by the waters which escape from them a magnificent series of cascades. The town, which is surrounded by an old wall, flanked with towers, is tolerably well built. The former cathedral of St. Nazaire (Nazarius), an ill-proportioned building, has an organ sustained by some singular bearded figures, whose appearance is somewhat ambiguous, as they have been taken by some for satyrs, while others represent them as doctors of law. The terrace in front of the cathedral is remarked for the beauty of its prospect; another terrace or 'belveder,' on or near the site of the citadel, has also a fine prospect. There are some remains of an amphitheatre; but this, with the exception of one or two inscriptions, is the only relic of Roman antiquity which has survived the repeated devastations of the town. There is an old figure of stone in one of the streets, which it was usual to dress up once a year. It was said to represent an ancient captain, Peire Pécruc, who, when the town was taken by the English, defended one street (the Rue Françoise) against them. This figure is now called *Pepesuc*. Its origin and meaning are unknown.

Before the revolution, Béziers had, besides its cathedral, a collegiate church, which had been in very antient times the cathedral, and was afterwards attached to a Benedictine abbey; five parish churches; an abbey of the order of St. Augustin; a college of the Jesuits; monasteries for Dominicans, Recollets, Carmelites, Augustinians, Capuchins, and Minims; and nunneries for nuns of the orders of St. Clara and of the Holy Ghost, for Visitandines and Ursulines. There were besides two hospitals and a seminary for priests.

The manufactures of Béziers consist of silk stockings, fine cloth, and druggets. There are also tan-yards, a glass-house, paper-mills, and distilleries. The product of its looms, together with the agricultural produce of the surrounding country, wine, brandy, oil, and silk, furnish the chief articles of trade. The population of the town in 1832 was 14,763, of the commune 16,769.

The town has a subordinate court of justice (*tribunal de première instance*) and a *tribunal de commerce*, or court for the settlement of commercial disputes; a *college* or high school, a library, an agricultural society, and a theatre.

Provisions are abundant and cheap, and the town is considered to offer several temptations to an epicure. There is a communication daily by the Canal du Midi with Toulouse. (Reichard's *Road-Book*.)

Béziers has produced several men of eminence; among them are Jean Barbeyrac, a Protestant, whose family quitted France upon the revocation of the edict of Nantes; Paul Pellisson Fontanier, an historical writer of some note, who endured a long imprisonment in the Bastile, in the time of Louis XIV., for his fidelity to his employer Fouquet, superintendent of the finances; Paul Riquet, the projector and engineer of the great Canal du Midi, one of the most wonderful works of its time; and Jean Jacques Mairan de Dortous, an astronomer of note in the early part of the last century.

This place was formerly the see of a bishop, a suffragan of the Archbishop of Narbonne; his diocese extended over a small part of Languedoc, now included in the diocese of Montpellier. The origin of the bishopric is antient: one of the possessors of it sat in the first council of Arles in 314.

Béziers is the capital of an arrondissement, comprehending 260 square miles, or 166,400 acres, and containing 12 cantons and 97 communes: the population in 1832 was 123,647. The environs of the town are well cultivated; they yield lead, coal, and marble. There are also some mineral waters. (Malte-Brun; Robert, *Dictionnaire Géographique*; *Dictionnaire Universel de la France, &c.*)

BEZOARS. The most probable etymology of the word bezoar is from the Persian *Pâd-zahr*, *i. e.* 'expelling poison, the expeller of poison:' the stone bears this and other designations of similar import in Persian: *e.g.* *Bâd-zahr*, which seems to be a corruption of *Pâd-zahr*. The word *pâd* means 'relieving, curing, removing (disease),' and *zahr* is 'poison.' Bezoars are substances found in various parts, but chiefly in the intestines, of land animals, and which were regarded as antidotes to all poisons, as well as supposed to possess other extraordinary virtues. Hence any substance which possessed, or was thought to possess, important qualities, was termed *bezoardic*, to indicate its value. Bezoars are either natural or artificial: but even the natural ones, being the result of disease, are not invariably met with in the animals which produce them. Their rarity, as well as the preternatural virtues ascribed to them, contributed to make them prized: on which account they have sometimes been sold for ten times their weight of gold. Those which were most esteemed came from the east and were the earliest used. The most highly-valued of these was obtained from the stomach of the *Capra Aegagrus*, or wild goat of Persia. This was called by way of eminence *Lapis Bezoar Orientalis*. The greater number of bezoars are procured from ruminating animals, and in many instances they are nothing more than some portion of their food agglutinated into a ball by the secretions of the intestinal canal. Similar formations are sometimes found in the human stomach or intestines, especially in persons who live much upon vegetable or farinaceous food. (See Monro *On the Morbid Anatomy of the Gullet*, &c.) The bezoars from the west, called also American, are chiefly obtained from the *Auchenia Lama* and *Auchenia Vicuña*, Illig. These have been analyzed by Proust, and found chiefly to consist of phosphate of lime. (See *Ann. de Chimie*, vol. i. p. 197.) The oriental and some other bezoars were analyzed by Fourcroy and Vauquelin. (See *Ann. du Muséum d'Hist. Nat.* i. 93, iv. 334.)

Bezoars, though still esteemed in the east, have long fallen into merited disuse in Europe. Various artificial bezoars were often fraudulently substituted for the genuine; but these are not to be confounded with certain metallic preparations, chiefly of tin, silver, mercury, and lead, the composition of which was well known, and only designated bezoars from their power in curing diseases; these, if employed in the present day, are designated by other names, and will be noticed under the heads of the metals and their preparations.

The *Bezoardicum animale* was the name given to the heart and liver of vipers, which, with other disgusting articles, were once used in medicine, but are now laid aside.

BHADRINATH, a town in northern Hindustan, situated on the west side of the river Alacananda, in 30° 43′ N. lat., 79° 39′ E. long. Bhadrinath derives all its importance from its temple, which contains idols that are the objects of great reverence all through India. It is stated that the pilgrims and religious mendicants who annually visit this temple amount to nearly 50,000. A belief is prevalent among Hindus that Bhadrinath is the dwelling-place of many holy persons, who have been living there in retirement for many thousand years. To favour this belief a cavern is pointed out to pilgrims as being the abode of these sanctified personages, but as the mouth of this cavern is closed by a great mass of snow, it is not possible for any of the visiters to satisfy their curiosity by invading the sanctuary of its inhabitants. The principal idol preserved in the temple is a figure cut out of black marble, which, during the season at which pilgrims resort to the shrine, is clothed in gold and silver brocade, and is attended by a numerous retinue of servants. But with the departure of the pilgrims the glory of the idol departs also; the attendants are dismissed, the clothing is removed, and the figure itself is stowed away in a vault.

The principal part of the houses in the town are occupied by brahmins and other attendants on the temple, most of whom withdraw from the place during winter, and return in time for the reception of the pilgrims.

Bhadrinath stands in the centre of a narrow valley about four miles in length. The town is 10,294 feet above the level of the sea. The land to the north rises to a great height, the peak of one mountain being 23,411 feet above the sea. At the end of May, masses of undissolved snow seventy feet thick have been observed on these mountains; some of them are perpetually covered with snow. Near to the high peak just mentioned is a spring of hot water, the steam rising from which emits a sulphurous smell.

(*Asiatic Researches;* Hamilton's *East India Gazetteer.*)

BHURTPORE, a district in the province of Agra, extending from Biana, in 26° 57′ N. lat., 77° 8′ E. long., to Gopaulghur, in 27° 39′ N. lat., and 77° 12′ E. long., and forming the western boundary of the province of Agra.

The soil in general is light and sandy, and the country is bare of trees. The land is represented by Bishop Heber as being one of the best cultivated and watered tracts that he had seen in India; it is irrigated only from wells. The principal productions are corn, cotton, and sugar, the last-mentioned of these being more carefully attended to than is usual in India. The villages are said by the bishop to have been in good condition and repair, while the whole country afforded a pleasing picture of industry.

The territory of Bhurtpore is governed by an independent native rajah, who is one of the principal chieftains of the Jauts. His dominions, the area of which is little less than 5000 square miles, contain, besides Bhurtpore, the capital, several towns, among which are, Combher, Deeg, Weyre, Biana, Kurnau, Gopaulghur, Nuggur, Robass, Wheeguish, Roodawah, Nudbharee, and Phurser. Combher, which is in 27° 17′ N. lat., 77° 14′ E. long., is the place where the salt is manufactured which is largely consumed in Upper Hindustan under the name of *balumba:* this salt is procured by evaporation from the water of some brine springs found in the neighbourhood. Deeg is situated in 27° 30′ N. lat., and 77° 12′ E. long., fifty-seven miles north-east of Agra. The ruins of many fine palaces give this fortress the appearance of having once been a place of importance. A severe action was fought under its walls in 1805 between the English forces under Lord Lake and the army of Holkar, in which the latter was defeated with great slaughter. During the rainy season the town would be subject to injury from the torrents that pour down from the high lands but for extensive embankments, which are constantly kept in repair. Weyre, in 27° 2′ N. lat., 77° 2′ E. long., is on the high road from Jeypore to Agra, and fifty miles west of the latter city. The town is surrounded by mud walls with circular bastions; the interior consists, like many other Indian towns, of an incongruous assemblage of mud huts and magnificent marble dwellings with gardens and fountains; the inhabitants are a mixture of Jauts and Mohammedans. Biana, which was the capital of the province of Agra when the site of the present capital was occupied by a small village, is situated in 26° 57′ N. lat., 77° 8′ E. long. Biana is built on the Ban Gunga river, fifty miles west-south-west from Agra. This town was first conquered by the Mohammedans in 1197. It is still a considerable place, containing several large stone houses. The inhabitants embark with activity in commercial pursuits. The town of Kurnau covers an extensive site, but is for the most part in ruins, only the eastern quarter being at all inhabited; it has a large brick fort in the centre, which is also in ruins. The other towns that have been named do not require further notice.

A treaty was concluded in 1803 between the English and the rajah of Bhurtpore, which provided that his dominions should be taken under British protection, while he, on the other hand, engaged to assist the English against Scindia and the rajah of Berar, with whom they were then at war. In the following year, when hostilities commenced likewise with Jeswunt Rao Holkar, the rajah of Bhurtpore, disregarding the treaty, joined his forces with those of Holkar The fortress of Bhurtpore was in consequence invested by the army under Lord Lake, to whom it was delivered up in April, 1805, when a fine of twenty lacs of rupees was imposed upon the rajah. This chief, Rhunder Sing, died in October, 1823, childless, and was succeeded by his brother, Buldeo Sing, who died in February, 1825, leaving a son named Bulwunt Sing, then only six years of age. His succession was disputed by his uncle, Doorjan Lall, who assumed the sovereignty. Bulwunt Sing having been previously recognized by Lord Amherst, then governor-general, a force, commanded by Lord Combermere, consisting of 25,000 men, with a train of artillery, was sent against the usurper, and the fortress of Bhurtpore was carried by assault on the 18th of January, 1826, with a loss to the British forces of 3000 killed and wounded. The young rajah, Bulwunt Sing, was then duly installed, and the territory of Bhurtpore was charged with the expense of the military operations, amounting to 24,39,173 rupees. At that time the fortress was a place of great strength, being surrounded by high walls sixty feet thick, and having a wide and deep ditch beyond. The walls, which were flanked at short intervals by bastions amply provided with artillery, are about eight miles round. The principal fort stood on high ground, at the eastern side of the town. This fort, with the principal bastions and other military defences, have since been blown up and demolished.

(Mills's *History of British India;* Bishop Heber's *Journal; Report of the Committee of the House of Commons on the Affairs of the East India Comp.*, 1832, political section.)

BIAFRA, BIGHT OF, is the innermost part of the Gulf of Guinea, on the western coast of Africa: it is bounded on the S. by Cape Lopez (about 1° 30′ S. lat.) and on the N. by Cape Formosa (5° 40′ N. lat. and near 6° E. long.); Cape Formosa divides it from the Bight of Benin. A straight line uniting both promontories and passing near Prince's Island (Isola do Principe) would measure about 580 miles, and would be upwards of 250 miles from the mouth of the Old Calebar river, which enters the innermost corner of the Bight. The shores of the bay probably extend to more than 800 miles.

The current prevailing in this bay does not appear to be in any way connected with the equatorial current of the Atlantic Ocean, which commences near the island of Anno Bom [see ATLANTIC OCEAN], but to be a continuation of that current which comes up from the Cape of Good Hope along the western shores of Africa; for Captain Boteler observed that all the currents along Prince's Island set strong, and in the dry season commonly between N.N.W. and N.N.E. The wind generally blows from the S.W. or S. The current, however, is changed by the tornadoes whenever they occur at full or change, at which time blowing from the S.E. or N.E. with great violence, they alter the direction of the current to W.S.W. or W.N.W.

The northern shores of the bay, nearly to the mouth of the Old Calebar river, are flat and low, belonging to the extensive delta of the Quorra river, or Niger, whose principal branch, the Nun, empties itself into the sea near Cape Formosa. The Old Calebar river is the first river on this side which has no communication with the Quorra, to which it runs parallel, and is separated from it by a hilly country, which also extends southward to the Rio del Rey. To the south of the Rio del Rey the country rises into mountains, which, opposite the Island Fernando do Po, attain a considerable height. These mountains, called Cameroon Mountains, from the river Cameroon, which bounds them on the south, contain a peak, which, according to estimation, rises to 13,000 feet above the sea, and seems to be connected with the Rumby Mountains which skirt the delta of the Quorra on the east.

South of this mountain-region runs the river Cameroon, of which very little is known; and south of the river extends a hilly or rather mountainous country, which, however, by degrees recedes farther into the interior and leaves a low and often swampy tract along the shore, especially to the south of Cape St. John. South of this cape the coast forms two smaller bays, divided from one another by a comparatively narrow tract of land, which terminates in Cape Clara, 0° 18′ N. lat. Into the northern of these bays the river Danger, or Rio d'Angra, empties itself. This river, which is called by the natives Moöhnda, flows, according to the information collected by Bowdich, far from the interior, and though it is not so wide as the Gaboon, its southern neighbour, it is considerably deeper: it is not visited by European vessels. The southern bay between Cape Clara and Sandy Point may be considered as the æstuary of the Gaboon river.

The Gaboon or Gabon river is the only place on the coast of the bay of Biafra which has been frequented by European vessels, and of which we have obtained more particular information. Its extensive æstuary at its junction with the open sea is on an average eighteen miles wide, Cape Clara being twenty-five miles distant from Sandy Point, and it extends eastward forty-five miles and upwards. About twenty-two or twenty-three miles from the open sea are two islands, called Parrot or Embenee and Konig or Dambee, of which only the latter and larger is inhabited. East of these islands the æstuary grows still wider, forming two small bays on the south and north, so that it here is thirty miles across; but it soon narrows to about twelve miles, which breadth it preserves to its eastern extremity, about forty or forty-five miles from the sea. At its upper end it receives two large rivers: one runs from the east, and falls into the æstuary with a mouth about four miles wide; the other proceeds from the S.S.E., and at its embouchure is about two miles wide. The eastern river, at a considerable distance from its mouth, is still a mile wide. The river, which flows from the S.E., is Ogovawai, and is said to divide in the interior into two branches, of which the southern one runs into the Congo, which is comparatively a small river before this confluence, which takes place about ten days' pull from the mouth of the Congo river.

The places most resorted to by European traders are George's Town or Naängo, on a creek of the æstuary of the Gaboon, about forty-five miles from the sea, and Mayumba, farther south on the coast, and nearly at equal distance from the Gaboon and Congo rivers. Naängo consists of one street, wide, regular, and clean. The houses are very neatly constructed of bamboo, and the manners of the more wealthy inhabitants are very pleasing and hospitable, and a European may reside among them not only with safety but with comfort. The inhabitants do not amount to more than 500 in number. The principal exports are red wood and ivory, both of which are in abundance.

The climate about this part of the Gaboon is very unhealthy, the heat being very great and always sensibly greater than on the Gold Coast or in the interior; but it is especially intense before the setting in of the sea breeze. The insalubrity of the climate is, however, still more caused by evaporation, especially in the wet season, when the vapours rising from the inundated country render the atmosphere so dense that it becomes very oppressive.

Wild animals are numerous, especially elephants, which are killed by the natives with poisoned arms. They use for this purpose two kinds of poison, both of which are the milky juices of the stalks of plants. These poisons are rubbed on the musket-balls, spears, arrows, and knives, and the effect on the elephant is described as almost instantaneous. Other remarkable animals are the ourang-outang and other kinds of monkeys, among which one, called by the natives *indeyana*, is said to be five feet high and four feet across the shoulders. Cameleons are frequent. Of domestic animals only goats and fowls are reared, and in the interior dogs also, where they are used as food. Water-birds are not common, except pelicans. In the creeks of the æstuary white mullets abound.

Agriculture is very little attended to, nature having been so bountiful in her gifts that the labour of sowing and reaping is almost unnecessary. Cotton and tobacco grow spontaneously (Bowdich); the caoutchouc tree is common, and likewise a species of butter tree, and the tree from which the kolla-nuts are gathered. The mangrove trees are found on the banks of the creeks and rivers, and they even grow some yards from the bank in the water, where their lower branches are frequently covered with oysters. The palm-wine tree is plentiful. Like most parts of the countries enclosing the Gulf of Guinea, the woods are so covered beneath with shrubs and plants that they seem impenetrable. Immense runners, twisting together, drop from the branches like large cables, generally covered with parasites; sometimes they adhere to the parent stem, and become themselves a tree; at others they shoot across to the branches of a neighbouring tree, and thus seem to form the forest into one mass. The climbing plants contribute to their entanglement; interlacing their tendrils among the trees, they enwreath them in the most beautiful flowers, and dropping in festoons form a splendid drapery to the green of the canopy.

Neither gold nor silver is found in this part of Africa. Iron is everywhere abundant, and is got out and worked by the Kaylee, a nation inhabiting the mountainous and woody country east of the Gaboon on the banks of the river running from the east. This tribe seems also to have made some progress in other branches of industry: they make cloth of bamboo, which resembles very much in appearance coarse brown Holland. Their mats are very fine, and much varied in colours and patterns.

The negro tribes inhabiting this country do not seem to belong to one nation: the languages spoken by them vary too greatly to admit such a supposition; but the scanty vocabularies hitherto obtained are quite insufficient to enable us to decide this point. This country contains a great number of small states, no great controlling kingdom being found here as to the west of the Quorra, like those of Ashantee, Dahomey, and Benin. The most considerable is that of Oroöngo, which comprehends the country about Cape Lopez. (Bowdich's *Mission from Cape Coast Castle to the Ashantee*; Lander; *Journal of the Geographical Society*, ii.; *Map of* Berghaus.)

BIALYSTOCK, a province of Western Russia, comprehended in what is termed 'The Midland Region,' and situated between 52° 3′ and 53° 38′ N. lat., and 22° 30′ and 24° 12′ E. long. It is bounded on the north and west by Poland, and on the south and east by the Russian province of Grodno; its superficial extent is about 3360 square miles. It constituted part of the former kingdom of Poland, and belonged to the voyvodeship of Podlachia until it was incorporated with the Russian dominions under the third treaty of partition in 1795. The greater part of Bialystock, however, was afterwards transferred to the duchy of Warsaw by virtue of the treaty of Tilsit in 1807, and the remainder having been ceded to Russia was erected into a distinct province, which an ukase of 1831 placed under the control of the government of Grodno. The general character of its surface is a flat, studded with sand-hills: the soil is in most parts light and sandy, but adapted to agricultural purposes, and in the southern districts, where there is an intermixture of sand and loam, it is highly productive. Three out of the four circles of the province, that of Beltz forming the exception, contain extensive woods and forests. The principal river of this province is the Western Bug, which forms its south-western boundary from Niemiroff to the village of Glina, and being navigable connects it with Warsaw and Danzig through the intervention of the Vistula: its tributaries are the Nurzek, which rises in the heart of the province, and for a short distance skirts it on the side of Poland; and the Nareva, whose winding course traverses Bialystock from north-east to south-west, though it is not navigable. The Suprasl, adapted only for floating timber, falls into the Nareva in this province, and also the Bober, Bobra, or Biebeza: both rivers separate the province from Poland for a considerable distance; the Bober is extremely slow, edged with swamps and rushes, inundates the adjacent country in spring, and its waters are always muddy. Between the Nareva and Goniondz, the Bober converts an area of full 210 square miles into a complete morass. The climate is temperate though moist, and not unhealthy in those parts where the exhalations from the swamps do not infect the atmosphere. The inhabitants are principally employed in husbandry, and raise sufficient grain, particularly rye and wheat, not only for their own consumption but for export. Buckwheat, pease, hemp, and, in sandy soils, flax, are grown extensively: neither vegetables nor fruit, except in a wild state, grow anywhere but on the estates of the nobility, and even then they are of the most ordinary descriptions; hops are raised in the environs of Nareff and Kleszel. The supply of timber, though abundant, is diminishing for want of replanting. Game and wild animals, particularly wolves, foxes, deer, and boars, are plentiful; the breed of horses is good and of a very durable kind; the sheep are of the black species, but much neglected; and the rearing of horned cattle is so ill conducted that milk is scarce, and the inhabitants are obliged to import both butter and cheese. Small quantities of tallow, black wool, wax, and honey are exported; the fisheries are almost unproductive; and the province yields no minerals beyond free-stone, clay, limestone, and a little iron, which is consumed in the country. Mechanical industry is quite in its infancy, and the whole province does not possess a single manufactory, or a commercial establishment of any extent, though it carries on much trade, in timber particularly, with Danzig, Königsberg, Elbing, and Memel. The population, including a host of noblemen (*schlachtey* or *schlacht schützen*, i. e. fighting-men), amounted in 1807 to 183,300 souls, and is at present estimated at about 230,000. These noblemen, of whom a vast proportion are so indigent as to cultivate their lands with their own hands, or hire themselves as labourers to their superiors in affluence, are said to exceed 9000 families in number, or nearly 50,000 individuals. Jews abound in the province, though not permitted by law to reside in any town. Bialystock is divided into the four circles of Bialystock, Belz, Droguitchin or Drohiezyn, and Sokolka.

Its capital, which gives name to the province, lies on the little river Bialy; though not walled, it has five massive towers, two suburbs, a spacious market, an extensive range of building for the sale of merchandise, containing nearly forty stores, a palace and park, once belonging to the counts of Potocky, but at present to the town, two churches and as many chapels, a convent, a gymnasium and civic school, a hospital, lying-in institution, &c. It is regularly built, several of the streets are bordered with lime-trees, broad, at right angles to one another, and paved; and many of the houses (about 700 in number) are handsome, though in general they are neatly constructed of wood, and do not exceed one story in height. On the whole, the town is deemed sufficiently fine to have deserved, at least among the natives, the appellation of 'the Podlachian Versailles.' In 1797 the number of houses was 459, and of inhabitants 3370; at the present day the population is above 6000. Bialystock lies in 53° 7′ N. lat. and 23° 18′ E. long.

The province contains altogether twenty-six towns, one market village, and 533 villages and hamlets. Among the first may be mentioned, besides the capital, *Belsh* (see that art.), *Goniondz* on the Bober, a small place in a sandy district, with about 1370 inhabitants; *Sokolka*, an ill-built town near a small lake, with about 1100; *Drohiczyn* on the Bug, the ancient capital of Podlachia, containing four churches, a college of Piarists, with a public school attached to it, two monasteries, a convent, and about 1000 inhabitants; *Ciechanoviek*, on the Nurzek, with its Jablonofsky palace, two churches, a convent, an hospital, and about 2700 inhabitants; and *Siemiatitshe*, a well-built town, with a handsome palace, which as well as the town belonged to the Jablonofsky family, two churches, a synagogue, and about 3600 inhabitants, the greater part of whom are Jews.

BIANCHI'NI, FRANCESCO, born at Verona, December 13, 1662, studied at Padua, where he applied himself particularly to mathematics under the learned Professor Montanari. At the same time he also made great progress in classical learning, a taste for which induced him, after he left the university, to proceed, in 1684, to Rome, where Cardinal Pietro Ottoboni, who knew Bianchini's family, received him into his house and made him his librarian. In this situation Bianchini devoted all his time to study: he investigated the monuments, medals, inscriptions, and other remains of antiquity with which Rome abounds; and he then conceived the idea of a universal history, grounded not so much upon written authorities, as upon the monuments of former times which have been found in various parts of the world.

In 1680, according to Lalande in his *Bibliographie Astronomique*, he published at Bologna a *Dialogo Fisico-Astronomico contro il Sistema Copernicano.*

In 1689, Cardinal Ottoboni having become pope, under the name of Alexander VIII., was enabled to provide for Bianchini, by making him a canon of Santa Maria ad Martyres, and bestowing on him some pensions besides. Alexander's pontificate was very short, but it placed Bianchini above want. Alexander's nephew, also called Cardinal Ottoboni, continued after his uncle's death to patronise Bianchini, and retained him in the office of librarian.

In 1697 Bianchini published the first part of his universal history: *Istoria Universale provata coi Monumenti e figurata coi Simboli degli Antichi*, 4to. Rome, 1697. It begins with the first records we have of the eastern nations, and ends with the destruction of the Assyrian empire under Sardanapalus. The author treats of the Babylonians, the Arabs, the Phœnicians and their colonies, the Egyptians, the Ethiopians, the Greeks, the Etruscans, and of all the other nations who have left monumental remains. It is a book full of curious erudition: it is illustrated by plates. Bianchini, however, did not continue the work. Clement XI. being raised to the papal chair in 1700, showed a marked favour towards Bianchini. He sent him to Naples in 1702, to accompany the Cardinal Legate Barberini, who went to congratulate Philip V. of Spain when he came to take possession of that kingdom. Clement also made Bianchini a prelate of his court, secretary to several congregations, and gave him apartments in the Quirinal Palace. He also made him a canon of Santa Maria Maggiore. Bianchini had taken deacon's orders, but through modesty he never would be ordained presbyter.

In 1703 Bianchini wrote two dissertations on the Julian Calendar, and on the various attempts made, especially by St. Hippolitus, for reforming it previous to the Gregorian reform: *De Calendario et Cyclo Cæsaris, ac de Canone Paschali Sancti Hippoliti martyris, Dissertationes duæ ad S. D. N. Clementem XI., Pont. Max.*, Romæ, 1703. Bianchini was employed by the pope in drawing a meridian line in the church of La Madonna degli Angeli, like that traced by Cassini in the church of S. Petronio at Bologna. In 1705 he was made a patrician of Rome by a decree of the senate, and in 1712 he was sent by Clement XI. to France to carry the cardinal's hat to the new-made cardinal, Rohan Soubise. After going to Paris, he went to Holland, and afterwards to England, when he visited Oxford, and was received everywhere with marked attention by the learned. Having returned to Rome in June, 1713, he resumed his labours both in astronomy and archæology. He superintended, with great care, a fine edition of the lives of the popes by Anastasius, with notes and comments: *Vitæ Romanorum Pontificum a B. Petro Apostolo ad Nicolaum I. perductæ, curâ Anastasii S. R. Ecclesiæ Bibliothecarii*, 3 vols. folio, 1718-28. The fourth and last volume was published after Bianchini's death by his nephew, Giuseppe Bianchini, in 1745.

In the year 1726, an antient building was discovered near the Via Appia, about a mile and a half outside of Rome, consisting of three sepulchral chambers of the servants and freedmen of Augustus and his wife Livia. Only one of the three rooms was cleared of the earth and rubbish, which Bianchini inspected carefully. Rows of small niches, like pigeons' nests, one row above the other, ran along the four sides of the room, and every niche contained two or more 'ollæ cinerariæ,' or little urns of terra cotta, in which the ashes of the dead were deposited. Above the niches were tablets containing the names and the offices of the persons whose remains lay in the urns beneath. Bianchini gives many of these inscriptions, which throw considerable light on the manners and domestic habits of those times: several of them refer to female servants of Livia. The total number of urns in that one room was above 1000. Another building of the same description had been discovered some years before in another vineyard by the Via Appia, about half a mile nearer Rome. It also consisted of three rooms, which contained at least 3000 urns, likewise of servants and liberti of Augustus: Fabbretti published a description of them. The names in the inscriptions denote individuals from every part of the Roman empire, some natives of Asia Minor and Syria, and others from the banks of the Danube, the Rhine, or the Ebro. Some of the inscriptions refer to the time of Claudius, and even to a later period, but by far the greater number belong to the time of Augustus. Other sepulchral deposits have been found of the slaves and freedmen of that emperor and his wife Livia, altogether showing the amazing number of servants attached to the great Roman families. Bianchini published the description of the room which he had inspected: *Camera ed Inscrizioni Sepolcrali dei Liberti, Servi, ed Ufficiali della Casa di Augusto scoperte nella Via Appia, ed illustrate con le Annotazioni di Monsignore Francesco Bianchini, Veronese, l'anno* 1726, fol. Roma, 1727. After exploring by day the sepulchral chambers in the Via Appia, Bianchini used to attend to his observatory by night. The planet Venus was the principal object of his observations. By attentively examining the spots on that planet, he was enabled to determine the period of its rotation. The result of his observations was published under the title of *Hesperi et Phosphori nova Phænomena, sive Observationes circa Planetam Veneris, a F. Blanchino, S. D. N. Papæ Prælato Domestico*, Romæ,

1728. He dedicated the work to John V. king of Portugal, who sent him in return a magnificent telescope, and a handsome present in money.

Bianchini formed the design of drawing a meridian line through Italy, from the Adriatic to the Mediterranean, passing through Rome, Mount Soracte, Assisi, Gubbio, &c. With this view he carried on his operations for eight years, at his own expense, and was obliged at last to give them up for want of means. An account of his labours was published after his death by his friend Eustachio Manfredi of Bologna: *Francisci Bianchini, Veronensis, Astronomicæ ac Geographicæ Observationes selectæ, Romæ, atque aliter per Italiam habitæ, ex ejus Autographis excerptæ, una cum Geographica Meridiani Rômani Tabula a Mari Supero ad Inferum, ex iisdem observationibus collecta et concinnata, cura et studio Eustachii Manfredi*, Verona, 1737. Bianchini himself had published that part of his observations which refers to the duchy of Urbino, through which his meridian was to pass: *Notizie e Prove della Corografia del Ducato di Urbino, e della longitudine e latitudine geografica della citta medesima e delle vicine, che servono à stabilire quelle di tutta Italia.* This memoir was inserted in the work called *Memorie di Urbino*, folio, Roma, 1724.

Under Clement XI. Bianchini began a museum of antiquities connected with ecclesiastical history, which he intended to illustrate by monuments, as he had already done with regard to profane history. The plan was however interrupted for want of funds. His nephew, Giuseppe Bianchini, made use of what had been collected for his *Demonstratio Historiæ Ecclesiasticæ comprobatæ Monumentis ad fidem temporum et gestorum*, two vols. folio, Roma, 1752, which treats of the first two centuries of the church. While Bianchini was one day, in 1727, exploring the ruins of the palace of the Cæsars on Mount Palatine, he fell through a broken vault to a considerable depth, and hurt himself severely. Having recovered his health in some measure, he resumed his elaborate description of those immense ruins, which however was not published till after his death: *Del Palazzo de' Cesari in Roma, opera postuma*, fol. Verona, 1738, with some fine engravings. He died at Rome, March 2, 1729, and was buried in Santa Maria Maggiore. A modest epitaph, which he had himself composed, was placed on his tomb, but his brother canons added another to it, in which a just tribute is paid to the character of the deceased. The city of Verona raised a handsome monument to his memory in the cathedral.

Bianchini was simple in his habits, strictly moral, pious, and kind-hearted. He had no worldly ambition: his only passion was that of study. Numerous dissertations by him are scattered in the *Mémoires de l'Académie des Sciences*, in the *Acta Eruditorum*, and in other collections. There are *éloges* of him in the *Nouvelles Litteraires de Leipsig*, Jan., 1731, and the *Hist. de l'Académie*, 1729. Mazzuchelli and Mazzoleni have written biographies of Bianchini, with a long list of his works.

His nephew, already mentioned, who was a man of considerable learning, published some of his uncle's *Opuscula Varia*, in 2 vols. 4to. Rome, 1754, and also his dissertation on the musical instruments of the antients: *De Tribus Generibus Instrumentorum Musicæ Veterum Organicæ*, Rome, 1742. This Giuseppe Bianchini is likewise the author of several learned works. There is also a Giuseppe Maria Bianchini, a native of Prato in Tuscany, who wrote a treatise on the Italian satire, a history of the grand dukes of Tuscany, and other works of literature.

BIAPHO'LIUS (zoology), Leach's name for a genus of bivalve shells, indistinctly known, and which Rang considers to be identical with the genus *Hiatella* of Daudin. [See Hiatella.]

BIAS, one of the seven philosophers called 'the Wise Men of Greece.' The exact dates of his birth and death are not known, but it appears from Herodotus (i. 170), that he was living at the time of the first conquest of Ionia by the Persians under Cyrus, B.C. 544-539. He was born at Priene, and his father was named Teutamus. Very few particulars of his life are recorded, but among them is one anecdote to the following effect:—Having purchased some young Messenian girls of good family, who had been made captives, he brought them up as if they had been his own daughters, gave them marriage-portions, and sent them home, without ransom, to their parents. Soon after, a tripod being brought up in the nets of some fishermen (Diogenes Laertius says of Athens, in the *Life of Bias*, and of Miletus in that of Thales), bearing an inscription, 'To the wise,' these young women, or their father, appeared, and relating what Bias had done, procured that the tripod should be given to their benefactor. Bias sent the tripod to Apollo at Delphi, intimating that the title of wise belonged to the god alone; or, according to another account, consecrated it to the Theban Hercules. But there are several varying versions of this story of the tripod, which is reasonably conjectured to be nothing but a legendary method of accounting for the origin of the title of the 'Seven Wise Men.'

It is said by Herodotus, that when Ionia was invaded by the Persians, Bias advised a general migration to Sardinia. The advice was not followed, and Bias ended his life in his native city. One of the stories told of him is, that when Alyattes, king of Lydia, besieged Priene, Bias fatted two mules, and sent them out into the Lydian camp. The king, surprised and dispirited by the apparent plenty which the good condition of the animals indicated, sent a messenger to treat of peace. On this, Bias directed the citizens to make heaps of sand, and cover them lightly over with grain. He took care that the messenger should see these heaps; and the man, on his return, represented the abundance in the city in such a light, that Alyattes immediately agreed to terms of peace. A similar story is told by Herodotus of Thrasybulus, tyrant of Miletus (i. 21, 22). The same author (i. 27) relates the manner in which either Bias or Pittacus deterred Crœsus from invading the Grecian islands. These stories are worth notice, as indicating what is to be understood of the 'Seven Wise Men.' They were not philosophers in the sense in which the word is commonly used, to designate men who have entered deeply into speculative science, for Thales, the founder of the Ionic school, was the only one of them who had any claim to that title: they seem merely to have been men of high repute for moral, political, or legislative knowledge, such as it then existed. Thus the few remains of them which are extant are comprised in the form of short pithy maxims, generally in verse, with the sentiment of which we are now so familiar, for the most part, as to regard them as self-evident propositions or truisms, and are therefore likely to underrate the merit of those who first enunciated them. Such were those which Hipparchus inscribed on the Hermæ at Athens, 'selecting the wisest things which he knew, both what he had learned and what he had himself thought out.' (Plato, *Hipparchus*, i. ii. 238, edit. Bekker.) Of this class of sayings we find the following, among others, ascribed to Bias:—Being asked, what is difficult and unpleasant? he replied, 'To bear with nobleness the changes from better to worse.' 'What is sweet to man?' Answer, 'Hope.' He said that it was better to arbitrate between your enemies than between your friends, because one of the enemies was sure to turn to a friend, and one of the friends sure to turn to an enemy. 'Life should be so ordered as if men were to live a long time and a short one.' 'Be slow to set hand to work, but what you begin abide by.' 'Take wisdom as the provision for travelling from youth to age, for of all possessions that sticks the closest.' Agreeably to this, it is said that on one occasion, when all persons but himself were collecting their valuables for flight, he replied to those who expressed their wonder at his indifference, 'I carry everything of mine about me.' He is said to have written two thousand verses on the subject, 'How Ionia might most prosper.' He was celebrated for skill in pleading causes, which, however, he has the credit of having always employed on the right side. His death took place after he had pleaded a cause successfully, in extreme old age. After the exertion, he reclined with his head on the bosom of his grandson, and on the breaking up of the court he was found to be dead. His fellow-citizens gave him a splendid funeral at the public expense, and consecrated a temple to him, which they called 'Teutamium.' Bias is one of the speakers in the 'Symposium' of Plutarch. (Diog. Laert. in Bias; Brucker, *History of Philosophy*.)

There are three collections of the sayings (γνῶμαι) of the wise men: two, attributed to Demetrius Phalereus and Sosiades, are preserved in Stobæus; a third is by an unknown author. Diogenes Laertius and Plutarch have preserved several apophthegms not found in these collections. The first two collections are preserved in the editions of Stobæus; the third was printed by the elder Aldus at the end of his 'Theocritus,' 1495. The completest collection of these γνῶμαι is by Joh. Conr. Orelli, in the first volume of his 'Moralisten.'

BIBERACH, a bailiwick in the circle of the Danube, and in the south-eastern part of the kingdom of Würtemberg, occupying an area of about 154 square miles, with about 25,300 inhabitants. The seat of local administration is the town of Biberach, which is situated in the beautiful valley of the Riess, and on the little river of that name. It is surrounded by walls, with towers and a ditch; contains four churches, two public schools, three elementary or national schools, a well-endowed hospital (to which twenty-seven villages, hamlets, and farms were once attached), two suppressed monasteries, and has a corn-market much frequented. The number of houses is about 850, and of inhabitants about 4600. Independently of agriculture and grazing, the inhabitants find profitable employment in weaving fustians and linens, tanning, paper-making, brewing, and bleaching. All that is known of its earlier annals is, that its privileges as a free imperial town were confirmed by Rudolph of Habsburg in the year 1272. It was the scene of severe conflicts between General Moreau and the Austrian forces under General Latour, 2d October, 1796, and between the same general and the Austrian commander Kray, on the 9th May and 5th June, 1800: the whole of which three days were gained by the French. Biberach came under the dominion of Baden in 1802, and was ceded by Baden to Würtemberg in 1806. It lies in 48° 5′ N. lat., and 9° 47′ E. long. The celebrated lyric poet, C. F. Wieland, who died in 1812, was a native of this town. The cold baths of Jordan are situated in the middle of a picturesque district about two miles from Biberach.

BIBLE, Βιβλία, Biblia, meaning *books*, is the name which was given in the fifth century by Chrysostom to the collection of sixty-six writings, which are recognised by Christians as divine. To these sixty-six sometimes are erroneously joined about fourteen apocryphal writings, so that the total number amounts to about eighty, of which thirty-nine are in the Old, and twenty-seven in the New Testament.

Before Chrysostom, the more complete expressions for Bible were *βιβλία θεῖα, books divine*; or *ἱερὰ γραφή, θεῖα γραφή, ἁγία γραφή*, sacred writings, &c.

'Independently of all consideration of its religious advantages, no book has conduced more than the Bible to the high cultivation and moral advancement of the human mind. The labour bestowed by so many of the learned upon the just interpretation of this inestimable book is of itself an attestation of its worth, and countenances the supposition that Divine Providence has appointed it for the attainment of great designs. So long as the professors of that religion, whose doctrine and morals are contained in the Bible, apply themselves, as they have hitherto done, to explain its contents, the learning of Christians will be eminently conspicuous. Nay, a well grounded system of biblical interpretation pre-supposes no slight degree of knowledge, and compels the instructors of the rising clergy to apply themselves closely to literary pursuits, in order to acquire a knowledge of the antient oriental languages; of the most celebrated works of the Greeks and Romans; of antient history; and of many sciences for which the constant exercise of the power of thinking is required. It cannot be denied, that the interpreters of holy scripture, both Jews and Christians, have often swerved from the truth, and introduced error, superstition, and prejudice, instead of a sound knowledge of religion and ethics. But it was precisely the want of a well regulated and systematic scheme of interpretation, which produced such disorders of a fanatical imagination, or, to say the least, such palpable aberrations of the understanding. As, even with the possession of much knowledge, both philological and philosophical, numerous and long continued errors have been mixed up with the important work of biblical interpretation, it is evident that a system of interpretation, founded on sound principles of reason—on philology, grammar, and history, is in the highest degree necessary for future teachers of religion.' (Seiler's *Biblical Hermeneutics.*)

The Bible is divided into the Old and the New Testament. At present we confine our observations to the Old, which is written in Hebrew, with the exception of some chapters in Daniel and Ezra, and a verse in Jeremiah written in Chaldee.

The name *Old Testament* was introduced by the apostle Paul, who wrote concerning the Jews: 'Their minds were blinded: for until this day the same vail [put over the face of Moses] remaineth untaken away in the reading of the *Old Testament*.' 2 Cor. iii. 14.

The Greek expression *παλαία διαθήκη* (*Palaia Diathéke*) means *old covenant* or old testament, and was translated in the Latin Vulgate, *Vetus Testamentum*. This name became usual among those European nations who recognized the supremacy of the Roman See and the authority of the Vulgate; but Slavonic nations, for instance the Russians and Poles, divide the Bible into the Old and the New Law. Tertullianus (*adv. Marcionem* iv. 1.) and Augustinus (*de Civitate Dei*, xx. 4. epist. Pelag. iii.) call the Old Testament *Vetus Instrumentum*.

The following antient appellations given to the Old Testament are more or less expressive of the veneration in which it was held: כְּתָב כְּתָבָא הַכָּתוּב, *ἡ γραφή* (2 Pet. i. 20), *αἱ γραφαὶ* (Matth. xxii. 29; Acts xviii. 24.)

כִּתְבֵי הַקֹּדֶשׁ, *γραφαὶ ἁγίαι* (Rom. i. 2); *ἱερὰ γράμματα* (2 Tim. iii. 15.)

סִפְרֵי הַקֹּדֶשׁ, סְפָרִים *τὰ βιβλία*, תּוֹרָה, *ὁ νόμος* (John xii. 34.)

ὁ νόμος, οἱ προφῆται καὶ οἱ ψαλμοὶ (Luc. xxiv. 44.)

ὁ νόμος καὶ οἱ προφῆται (Acts xxviii. 23, &c.), *ὁ νόμος, οἱ προφῆται καὶ τὰ ἄλλα βιβλία*, Tes. Sir. Prol.

הַמִּקְרָא עֶשְׂרִים וְאַרְבָּעָה: סֵפֶר הָאַרְבָּעָה וְעֶשְׂרִים (comp. Neh. viii, 8, where this word occurs, but in a different sense), בֵּית הַמִּקְדָּשׁ, מִקְדָּשְׁיָה, *βιβλία τῆς παλαίας διαθήκης*, vetus Testamentum, sive Instrumentum, (compare *ἡ παλαία διαθήκη*, 2 Cor. iii. 14., *βίβλος τῆς διαθήκης*, 1 Mac. i. 57; 2 Kings xxiii. 2, according to the Septuagint.) [See Apocrypha.]

The names of the New Testament are, *τὸ εὐαγγέλιον καὶ ὁ ἀπόστολος*; or *τὸ εὐαγγελικὸν καὶ τὸ ἀποστολικὸν*; or *ἡ καινὴ διαθήκη*, Novum Testamentum, sive Instrumentum. [See New Testament.]

With the collection of the Old Testament arose its division into

1. תּוֹרָה, *νόμος*, lex, law, i. e. the five books of Moses.
2. נְבִיאִים, *προφῆται*, prophetæ, prophets.

These נְבִיאִים, or prophets, are subdivided into נְבִיאִים רִאשׁוֹנִים, 'the former prophets' (containing the books of Joshua, Judges, Samuel, and Kings), and into נְבִיאִים אַחֲרוֹנִים, 'the later prophets.' The later prophets (which we alone call prophets, Isa. Jer. Ezech.) are again divided into גְּדוֹלִים, 'the great;' and קְטַנִּים, 'the small,' תְּרֵי עָשָׂר, *βίβλος τῶν δώδεκα προφητῶν, τὸ δωδεκαπρόφητον, i. e.* the twelve minor prophets.

3. כְּתוּבִים, *γραφεῖα, ἁγιόγραφα*, holy writings, containing the Psalms, Proverbs, Job, Song of Songs, Ruth, Lamentations, Ecclesiastes, Esther, Daniel, Ezra, Nehemiah, two books of Chronicles.

The Jews being fond of making new names of the initials of other appellations, call the three first books of their כְּתוּבִים, 'holy writings,' by the name of 'the books,' אמ״ת from אִיּוֹב Job, מִשְׁלֵי Proverbs, and תְּהִלִּים Psalms; the word אֱמֶת means *truth*. The books אמת are also called poetical books, and differ in their accentuation from the rest of the Hebrew Old Testament. Solomon's Song, or Song of Songs, Ecclesiastes, Ruth, Lamentations, and Esther, form the חָמֵשׁ מְגִלּוֹת, *i. e. the five rolls*, so called because they are read on certain festivals in their synagogues from manuscript rolls, and are even printed in the shape of rolls. Christians reckon the Song of Songs and Ecclesiastes among the poetical books, and they give to Daniel the fourth place among the great prophets, who are called *great* because their remains are more voluminous than those of the so called *minor* prophets, although the latter are not inferior in matter and style.

From the initials of תּוֹרָה, נְבִיאִים and כְּתוּבִים the Jews make another name for the whole Bible תנך *T'nach*, perhaps in allusion to the root תָּנַךְ, he *ceased*, or was *finished*.

After these observations the following diagram will be understood, and will facilitate the finding of Hebrew passages, since most Christians are accustomed to a different succession of biblical books:—

תנך consummation or כְּתָב writ	תּוֹרָה doctrine or legislation			בראשית	1.	Genesis.
				שמות	2.	Exodus.
				ויקרא	3.	Leviticus.
				בְּמִדְבַּר	4.	Numbers.
				דברים	5.	Deuteronomy.
	נְבִיאִים prophets	רִאשׁוֹנִים former		יהושע	6.	Joshua.
				שופטים	7.	Judges.
				שמואל	8.	Samuel.
				מלכים	9.	Kings.
		אַחֲרוֹנִים later	גדולים great	ישעיה	10.	Isaiah.
				ירמיה	11	Jeremiah.
				יהזקאל	12	Ezechiel
			קְטַנִּים or תְּרֵי עָשָׂר small thirteen	הושע	13	Hosea.
				יואל	14.	Joel.
				עמוס	15.	Amos
				עובדיה	16	Obadiah.
				יונה	17.	Jonah.
				מיכה	18	Micah.
				נחום	19.	Nahum
				חבקוק	20.	Habakkuk
				צפניה	21.	Zephaniah
				חגי	22	Haggai
				זכריה	23.	Zechariah
				מלאכי	24	Malachi.
	כתובים writings Hagiographa		אמת truth	תהלים	25.	Psalms
				משלי	26	Proverbs
				איוב	27	Job.
			חֲמֵשׁ מגלות five rolls	שיר השירים	28.	Song of Songs.
				רות	29	Ruth.
				איכה	30	Lamentations
				קהלת	31.	Ecclesiastes
				אסתר	32	Esther.
				דניאל	33.	Daniel.
				עזרא	34	Ezra.
				נחמיה	35	Nehemiah.
				דברי הימים	36.	Chronicles.

If we count both books of Samuel, Kings, and Chronicles, we find that the Old Testament consists of thirty-nine books, but the Talmud counts only twenty-four books, because the twelve minor prophets are considered as one book, and the books of Samuel, Kings, Chronicles, Ezra, and Nehemiah constitute, according to the Talmudists, only four books (Baba Bathra, f. 14, c 2.) After the five books of Moses, the rest of the biblical books are enumerated as follows:—

סדרן של נביאים יהושע ושופטים שמואל ומלכים
ירמיה ויחזקאל ישעיה ותרי עשר : סדרן של כתובים
רות תהלים ואיוב ומשלי וקהלת שיר השירים וקינות
דניאל ומגילות אסתר עזרא ודברי הימים

The arrangement of the Septuagint and Vulgate, which is followed in the English Bible, will be explained under SEPTUAGINT, and VULGATE. Josephus, who was born A D. 37, in a passage which we shall soon quote from Whiston's translation, enumerates twenty-two biblical books (δύο μόνα πρὸς τοῖς εἴκοσι βιβλία), which he probably numbered as follows:

Five books of Moses .
1. Genesis.
2. Exodus.
3. Leviticus.
4. Numbers.
5. Deuteronomy.

The Prophets in thirteen books.
6. Joshua
7 Judges and Ruth
8 Two Books of Samuel.
9. „ „ Kings.
10. „ „ Chronicles.
11. Ezra and Nehemiah.
12. Esther.
13. Isaiah.
14. Jeremiah and Lamentations.
15. Ezekiel.
16. Daniel.
17. Twelve minor prophets.
18. Job.

The other four contain hymns to God, and maxims for the conduct of life.
19. Psalms.
20. Proverbs.
21 Ecclesiastes.
22. Song of Songs

This rather artificial arrangement arose from a desire of having as many and no more biblical books than there are letters in the Hebrew alphabet.

In the Ecclesiastical History of Eusebius (iv. 26), Meliton, in a letter to Onesimus, states that he travelled to the East in order to investigate exactly the nature of the Old Testament in those countries in which it was written, and where the events related therein happened, and that he found the following to be the names of the books contained in the Old Testament:—Μωυσέως πέντε· Γένεσις, Εξοδος, Λευιτικον, Ἀριθμοι, Δευτερονόμιον· Ιησους Ναυῆ, Κριταὶ, Ρουθ, Βασιλειῶν Τεσσαρα, (i e. 2 Sam. and 2 Kings), Παραλειπομενων δυο, *Ψαλμῶν Δαβὶδ, Σολομῶνος Παροιμίαι, ἡ καὶ Σοφία, Ἐκκλησιαστὴς, Ἆσμα ᾀσμάτων, Ἰώβ· Προφητῶν, Ἡσαίου, Ἱερμίου· τῶν δώδεκα ἐν μονοβίβλῳ, Δανιὴλ, Ἰεζεκιὴλ, Ἔσδρας.* Here we find Nehemiah and Esther omitted, but again the number twenty-two.

In the Ecclesiastical History of Eusebius (vi. 25), a passage from Origen is quoted, which states that, according to the tradition of the Hebrews, there are twenty-two canonical books, which is the number of their letters. The following words of this passage prove much for the high antiquity of the Greek and Hebrew appellations given to the biblical books; we transcribe the list in Greek, which may be read by all who will refer to the article Alphabet.

Εἰσὶ δὲ αἱ εἴκοσι δύο βίβλοι καθ' Ἑβραίους αἵδε· ἡ παρ' ἡμῖν Γένεσις ἐπιγεγραμμένη, παρὰ δὲ Ἑβραίοις ἀπὸ τῆς αρχῆς βίβλου Βρησὶθ, ὅπερ ἐστιν ἐν ἀρχῇ· Ἔξοδος, Οὐαλεσμὼθ, ὅπερ ἐστι ταῦτα ὀνόματα· Λευιτικὸν, Οὐϊκρὰ, καὶ ἐκάλεσεν· Ἀριθμοὶ Ἀμμεσφεκωδείμ· Δευτερονόμιον, Ἔλλε ἀδδεβαρὶμ, οὗτοι οἱ λόγοι· Ἰησοῦς υἱὸς Ναυῆ, Ἰωσοῦε βεν Νοῦν· Κριταὶ, Ῥοὺθ, παρ' αὐτοῖς ἐν ἑνὶ Σωφετίμ· Βασιλειῶν πρώτη, δευτέρα, παρ' αὐτοῖς ἓν Σαμουὴλ ὁ θεόκλητος· Βασιλειῶν τρίτη, τετάρτη, ἐν ἑνῖ Οὐαμελεχ Δαβιδ, ὅπερ ἐστι βασιλεία Δαβίδ· Παραλειπομενων πρῶτον δεύτερον, ἐν ἑνὶ Διβρὴ Ἀϊαμὶμ, ὅπερ ἐστι λόγοι ἡμερῶν· Ἔσδρας πρῶτος καὶ δεύτερος ἐν ἑνὶ Ἐζρᾶ, ὁ ἐστι βοθός Βιβλος· Ψαλμῶν, Σέφερ Θιλλίμ· Σολομῶντος Παροιμίαι Μισλώθ· Ἐκκλησιαστὴς, Κωέλεθ· Ἆσμα ἀσμάτων, Σὶρ ἀσσιρίμ· Ἡσαΐας, Ιεσαϊά· Ιερεμίας σὺν θρήνοις καὶ τῇ ἐπισολῇ, ἐν ἑνὶ Ιερεμία· Δανιὴλ, Δανιήλ· Ἰεζεκιὴλ, Ιεεσκήλ· Ἰὼβ, Ἰώβ. Ἐσθὴρ, Εσθήρ. Besides these, Origen adds, there are *τὰ Μακκαβαϊκὰ*, which bear the inscription, Σαρβὴθ Σαρβανὲ ἔλ. This passage proves that the Greeks about 1500 years ago found the pronunciation of שׁ *sh* as difficult as they find it now, and that the Hebrew vowels were pronounced as at present.

Origen seems to have forgotten the book of the twelve minor prophets; and so it happens that, having promised to count twenty-two books, he enumerates only twenty-one. In the Latin version of Eusebius by Ruffinus the book of the minor prophets is inserted after the Canticles; and in a similar manner Hilarius expresses himself in the prologue to the Psalms which he translated from Origen.

According to a Jewish tradition, Moses was the first who wrote. In the subsequent heroic times of the Hebrews we find the noting down of historical facts and the composition of poems; but Hebrew literature received its chief impulse at a later epoch from Samuel's *Schools of the Prophets*, which produced the best specimens of moral or didactic and lyric poetry, and the finest prophetical compositions.

That several documents and books of antient Hebrew literature have been lost, is in itself very credible, and it appears, from the difference of style, that Genesis is formed out of various documents. (See Genesis.) The book of Jasher is twice quoted (Jos. x. 13.; 1 Sam. i. 18.), but the compilations in Hebrew and in English extant under this title are forgeries. (See Jasher.) The books of Chronicles and Kings are extracts from larger records, to which the reader is frequently referred by such phrases, 'Now the acts of David the king, first and last, behold they are written in the book of Samuel the seer, and in the book of Nathan the prophet, and in the book of Gad the seer.' 1 Chron. xxix. 29. 'And the rest of the acts of Solomon, and all that he did, and his wisdom, are they not written in the book of the acts of Solomon?' 1 Kings xi. 41. 'Now the rest of the acts of Solomon, first and last, are they not written in the book of Nathan the prophet, and in the prophecy of Abijah the Shilonite, and in the visions of Iddo the seer against Jeroboam the son of Nebat?' 2 Chron. ix. 29. Solomon 'spake three thousand proverbs, and his songs were a thousand and five,' most of which are not extant now. Even by counting the subdivisions in the Solomonic writings now extant, the above numbers cannot be produced. According to the rabbinical mode of counting stated in Hebrew at the conclusion of biblical books, the number of verses in the book of Proverbs is 915, in the Song of Songs 117, in Ecclesiastes 222.

With the restoration of the antient constitution and manners there was excited a literary zeal for collecting those remains of national literature which were neglected during the Babylonian captivity. To this zeal for collecting the antient holy writings the Old Testament owes its formation. But the zeal for national literature survived the national language, and accordingly the body of the Apocrypha was added, after the Old Testament had been brought to a conclusion, about B.C. 150. Ezra, and the other members of the great synagogue, have been frequently considered as the founders of the Canon: but the Talmudic passages upon which this opinion rests are by no means decisive; and we have therefore more reason to ascribe this merit to Nehemiah, concerning whom we read in the 2 Maccabees, ch. ii. v. 13, 'the same things also were reported in the writings and commentaries of Neemias, and how he founded a library, gathered together the acts of the kings, and the prophets, and of David, and the epistles of the kings concerning the holy gifts.' In like manner Judas also gathered together all those things that were lost by reason of the war we had; and they remain with us.'

The most antient record of the Old Testament as a collection is in the prologue of Jesus son of Sirach, about B.C. 130, under the appellation of *νόμος καὶ προφῆται*, 'the law and the prophets.' 'Whereas many and great things have been delivered to us by the law and the prophets and by others that have followed their steps, for which things Israel ought to be commended for learning and wisdom, and whereof the readers must not only become skilful themselves, but they also that desire to learn be able to profit them which are without both by speaking and writing: my grandfather, Jesus, when he had given himself much to the law and the prophets, and the other books of our fathers, and had gotten therein good judgment, was drawn out also himself to write something pertaining to learning and wisdom, to the intent that those who are desirous to learn and are addicted to these things, might profit much more by living according to the law.' With this we may compare Luke, ch. xxiv. v. 44; 'All things must be fulfilled which were written in the law of Moses, and in the prophets, and in the Psalms concerning me.' The Psalms seem here to be the representatives of the Hagiographa or holy writings, which constituted the third part of the Old Testament and followed the law and the prophets.

From the above passages we infer that the Old Testament existed as a collection in the two centuries preceding Christ.

Philo, who flourished about B.C. 41, seems likewise to appeal to the Old Testament as to a collection of books. (See Hornemann, *Observationes ad Illustrat. Doctrina de Canone Vet. Test. ex Philone*, 1775.)

But the clearest proof for the existence of our present canon of the Old Testament is in the first book of Josephus *against Apion*, c. 8.

'We have not an innumerable multitude of books among us, disagreeing from and contradicting one another (as the Greeks have), but only twenty-two books, which contain the records of all time, and are justly believed to be divine: and of them five belong to Moses, which contain his laws and the tradition of the origin of mankind till his death. This time was little short of three thousand years. But as to the time from the death of Moses till the reign of Artaxerxes, king of Persia, who reigned after Xerxes, the prophets who were after Moses wrote down what was done in their times in thirteen books; the remaining four books contain hymns to God, and precepts for the conduct of human life.

'It is true our history hath been written since Artaxerxes very particularly, but hath not been esteemed of the like authority with the former by our forefathers, because there hath not been an exact succession of prophets since that time; and how firmly we have given credit to these books of our own nation is evident by what we do; for during so many ages as have already passed, no one hath been so bold as either to add any thing to them, to take any thing from them, or to make any change in them; but it is become natural to all Jews immediately and from their very birth to esteem these books to contain divine doctrines and to persist in them, and, if occasion be, willingly to die for them, &c.' (Comp. *Antiquit. Jud.* l. xi. c. 6, s. 13.)

When the Hebrew language died away, the canon of the Old Testament became closed.

The Samaritans recognised the authority of the Pentateuch only, and of the book of Joshua. They slightly interpolated the Pentateuch, but considerably altered the book of Joshua. Their rejection of the other books of the Old Testament may be compared with the opinion of Philo, according to which Moses alone is the teacher of religious mysteries, although he ascribes inspiration to the other books of the Old Testament as well as to his own writings.

During the first centuries after Christ the writings of the New Testament were placed on a level with those of the

Old. Both Testaments were publicly read; the Old Testament was read in the Septuagint translation or the Alexandrine version of the Hebrew into Jewish Greek. Hence it has arisen that Christian writers frequently cite as Scripture the Apocrypha which were mixed up in the Septuagint with the canonical books; but as soon as the attention of the learned was directed to the canon, the later products of Jewish literature subsequent to the extinction of the Hebrew language were again separated from the canon. The canonical books were therefore called *Libri Regulares*, or Regular Books, and the Apocryphal books *Libri Secreti*, or Secret Books. But the reading of the *Libri Secreti* continued during the third century. In the fourth century several lists of Biblical books were promulgated by the orthodox Greek church in order to prevent the use of Apocryphal or uncanonical books (*ἀκανόνιστα βιβλία*).

These lists generally adhere, in the Old Testament, to the Jewish canon, but fluctuate in the New Testament concerning the Apocalypse. The name *Apocrypha* signifies in these lists fictitious and heretical writings; but between the canonical and Apocryphal is placed a third class of writings, the reading of which is permitted to the church. The Latin church adopted, with reference to the Old Testament, laxer principles, and admitted several Apocryphal writings into the canon; although the learned, like Hieronymus, adhered to the twenty-two books, according to the letters in the Hebrew alphabet. Hilarius also mentions that the law of the Old Testament was divided into twenty-two books, corresponding in number to the letters of the Hebrew alphabet, but adds that, according to the opinion of others, Tobit and Judith should be added in order to complete the number of the Greek alphabet, which contains twenty-four letters. The Protestants, returning to the Jewish canon, separated the Apocryphal additions of the Alexandrine version, which were for the first time decidedly made canonical by the council of Trent in opposition to the reformers. The council of Trent decrees, in its fourth session, that if anybody will not admit as holy and canonical all the entire books and all their parts extant in the Latin Vulgate, he shall be *anathema.*

After these general remarks concerning the formation of the canon, we shall briefly survey the history of the text.

Before the Babylonian exile the Biblical books were written in the characters still extant in the legends of the Asmonæan coins, of which we have given specimens in the article ALEXANDER JANNÆUS and in ALPHABET. Instead of the antique Hebrew character which is nearly allied to the Samaritan, there was employed after the Babylonian captivity a sort of Aramaic alphabet, which was gradually changed by transcribers into the present square character, of which the Spanish, the German, and the intermediate or Italian are three modifications found in Hebrew manuscripts. The characters printed in modern editions of the Hebrew Old Testament are formed according to the Spanish manuscripts, which are the most beautiful. The characters employed in the publications of Sebastianus Münster at Basel about A.D. 1530, are imitations of German manuscripts.

The Italian and French Jews wrote in a middle style, between the Spanish and German. The Rashi, Rabbinical, and cursive Hebrew characters represent the gradual changes of the square characters to a Hebrew running hand, which are also occasionally employed in manuscripts written for private use, and are therefore less accurately revised, and consequently of less authority than those written for public use in synagogues. The most antient manuscripts had neither vowels nor diacritical marks, nor were the words always divided. (See Hupfeld, *Beleuchtung dunkler Stellen in der alt-testamentlichen Textgeschichte. In den Studien und Kritiken* 1830.)

Verses and punctuation, which are already mentioned in the Talmud, are marked in Hebrew by accents, which served also as rhythmical marks to be observed in the Oriental style of reading, which approaches to singing. Hieronymus followed probably the פסוקים, *sections*, mentioned in the Talmud, in dividing the prophetical and poetical books into *cola* et *commata*, and the historical books into *cola* only.

In old Hebrew manuscripts, as well as in those of the Septuagint and Italian version, the poetical books are written in hemistichs or half verses, thus:—

Sepulchrum patens est guttur eorum.
Linguis suis dolose agebant.
Venenum aspidum sub labiis eorum.

The present division into chapters, which the Jews have adopted, is of Christian origin, and does not occur before the thirteenth century. The *capitula* of Hieronymus, the Tituli and *Breves* in the Latin, the סדרים or סדרין, *orders*, and סמנים (*σημεῖα*) *marks*, of the Masoreths, were so fluctuating that, before the introduction of the present chapters and verses, the quotations were very vague. The Pentateuch alone was in antient times divided into fifty-four 'sections,' פרשיות, according to the number of the Sabbaths in the Jewish leap year.

On every Sabbath a certain sederah, or parasha or section, is read, and in the common year, which does not contain fifty-four Sabbaths, two sections are to be read on some Sabbaths, so as to complete the reading of the Pentateuch every year. The Parashioth, or 'sections,' are subdivided into seven smaller divisions, according to the number of men who are usually honoured by being called upon on the Sabbath to read publicly the law in the synagogue. But in these divisions, and in accounting for them, neither the Jews nor the learned perfectly agree among themselves.

The Parashioth, which in regularly written manuscripts commenced a line, are called פתוחות, *open*, and are marked in printed Hebrew Bibles פפפ or פ. Those which commence in the middle of a line are called סתומות *closed* or *shut* up, and are marked ססס or ס. But in printed Bibles ס stands sometimes at the commencement, and פ in the middle of a line.

Notwithstanding the great care bestowed by the Jews after the Babylonian exile upon the preservation of the Hebrew text, some transpositions have crept in; letters, words, and sentences, have been omitted; and some mistakes between נג. יו. כב. רד &c., as well as errors in the division of the words and the filling up of abbreviations, &c., have been made; sometimes letters of a similar sound, synonymous words, and those of similar sound and parallel passages were exchanged. Some alterations were also introduced by the officiousness of critics in removing expressions which they either deemed offensive, or hard to be understood, or not perfectly analogous to parallel passages. A comparison of the parallel passages in the Old Testament shows that these alterations happened most frequently in the most antient times before the ecclesiastical authority of the canon was established. Comp. Ps. xiv. with liii.; xl. 14th seq. with lxx.; xviii. with 2 Sam. xxii.; Ps. cviii. with lvii. 8—12; lx. 7—14; Ps. cv. with 1 Chron. xvi. 8—22; Ps. cxvi. with 1 Chron. xvi. 23—33; Is. xxxvii. xxxviii. with 2 Kings, xviii. xix.; Jer. lii. with 2 Kings xxiv. Compare also the parallel passages in the books of Samuel, Kings, and Chronicles: Is. xv. xvi. with Jer. xlviii. and other passages cited in Eichhorn's *Einleitung*, i. pp. 139, 6; Bauer, *Critica Sacra*, p. 236, seq.; Gesenius, *Geschichte der hebräischen Sprache*, p. 38. seq. Although these alterations do not materially affect the tenor and scope of biblical doctrine, it has been the business of critics to collect and to compare the various readings of the Hebrew text, and thus to restore its original purity.

The oldest recension of the Hebrew text, coming from a quite different quarter, and being independent of the usually received text, is that of the Samaritan Pentateuch, which seems to be closely related to the copy from which the Septuagint interpreters translated. The various readings of the Samaritan Pentateuch were for a considerable time overvalued by some and despised by others, and herein both parties frequently showed more zeal than knowledge. But the last examination of the Samaritan text by Gesenius (*De Pentateuchi Samaritani origine, indole et auctoritate Commentatio Philolol. crit. scripsit* Guil. Gesenius; Hal. 1815, 4.) has shown that the assertions of the zealots against the Codex Samaritanus, although produced without reason, were not substantially wrong. Its character is uncritical; most of its characteristic readings have arisen from injudicious grammatical corrections, inserted glosses, explanatory conjectures, grammatical and historical additions and alterations according to parallel passages, Samaritanisms in language and doctrine, as for instance the substitution of Garizim, גריצים, for עיבל in Deut. xxvii. 4.

The Jews in Babylon and Palestine appear to have been more critical than those in Egypt and the Samaritans, because Aquila, and the other Greek translators after Christ, and Onkelos and Jonathan agree more with the Masorethical text than the Septuagint. About the time of the birth of Christ arose schools of learning, especially in law, grammar, and criticism. After the destruction of Jerusalem these schools were transplanted to Jabne, Ziphoria, Lydda, Cæsarea Palestina, formerly called Straton's Tower, on the coast of the Mediterranean, Tiberias, and at a later period to Sora, Pumpeditha, and Nahardea on the banks of the Euphrates.

Origen, in composing the Hexapla, perused a Masorethical manuscript in the third century after Christ, and in the fourth century Hieronymus employed Palestine teachers and MSS. The present received text originates from Palestine. Therefore the interpretations and readings of Hieronymus are nearly allied to the present received text. Many passages indicate that Hieronymus employed an unpointed text. In his Epistle, 125, he observes, 'The same word written with the same letters has divers meanings, for instance *pastores*, herdsmen, and *amatores*, lovers, are written with the same letters, Res, Ain, Jod, Mem (רעים): but the word for *herdsmen* is pronounced *roim*, that which signifies *lovers*, *reim*.'

The Talmud contains precepts of biblical calligraphy (Tr. Gittin, f. 45. c. 2.), mentions a comparison of manuscripts (Hieros. Tr. Taanith, f. 68, c. 1, compare Tr. Sopherim, vi. 4.), and refers to certain classes of biblical emendations prior to the Talmud, called by Morinus 'fragmenta' or 'vestigia recensionum;' by Eichhorn, *Revisiones*. These classes are

I. עִטּוּר סוֹפְרִים, ablatio scribarum, concerning the omission of vau ו in Gen. xviii. 5; xxiv. 55; Num. xii. 14; Ps. lxviii. 26, xxxvi. 7. See Nedarim f. 37, c. 2.

II. תִּקּוּן סוֹפְרִים, correctio scribarum, concerning sixteen or eighteen erroneous passages, *e. g.* Gen. xviii. 22; 1 Sam. iii. 13.

III. Puncta extraordinaria in fifteen words, *e.g.* Ps. xxvii. 13, לוּ לֹא. Tr. Sopherim, vi. 3.

IV. קְרִי וְלֹא כְתִיב, if there was any thing to be read which was not written, 2 Sam. viii. 3; xvi. 23. Nedarim, f. 37. c. 2.

V. כְּתִיב וְלֹא קְרִי, if there was in reading to be omitted what was written in the text, as in 2 Kings v. 18.

VI. קְרִי וּכְתִיב, various readings, as Job xiii. 5. Hagg. i. 18.

After the conclusion of the Talmud in the sixth century, the Jewish scribes continued, especially in Tiberias, to propagate their critical traditions, at first orally, afterwards by writings; these writings were afterwards placed in the margin of the manuscripts. Subsequently those critical remarks were improved and augmented by the so called בעלי מסורה 'the lords of the Masora,' who also counted the number of the verses, of the words, and of the consonants in the biblical books.

There exists also in the rabbinical bibles of Bomberg and Buxtorf, and in the sixth volume of the London Polyglott, a list of various readings by Rabbi Aharon Ben Asher, and Rabbi Jacob Ben Naphthali, of the eleventh century. The readings of Ben Asher are preferred by the western, and those of Ben Naphthali by the eastern Jews. From the circumstance that their observations regard exclusively the vowels and accents, we conclude that the punctuation of the text was already accomplished in their days, and that they employed punctuated manuscripts.

After the origin of the Masora, the MSS. were probably often altered accordingly. But we have reason to think that no material change took place, because even the complaint of Meir Hallevi about the corruption of the manuscripts refers especially to abbreviations which do not affect the sense. The famous MSS. of the rabbins in the middle ages, as that of Hillel, Ben Asher, (called the Egyptian or Hierosolymitan,) and that of Ben Naphthali and others, adhered to the Masora.

The earliest editions of the Hebrew bible were imitations of antient manuscripts, and have therefore critical authority. The oldest Hebrew prints contain only parts of the Old Testament. The oldest specimen of Hebrew typography contains the Psalms with the commentary of Kimchi, A.D. 1477, probably printed at Bologna. A very old specimen of Hebrew typography was presented by Dr. Pellet, in 1735, to the library of Eton College, containing the Cethubim or Hagiographa, printed at Naples in 1487. This edition was burnt by the Jews, probably on account of its readings frequently differing from the Masora, which was considered already at that period the standard of correctness. The copy at Eton is printed on vellum, and is considered the only one that escaped the flames. (See J. B. De Rossi, De Hebraicæ Typographiæ Origine et Primitiis, sive de antiquis et rarissimis Hebraicorum Bibliorum editionibus sæculi xv., Parmæ, 1776, 4to., reprinted with a preface by Hufnagel, Erlangen, 1781, 8vo. De Rossi, De Typographia Hebr. Ferrariensi Comment. Hist., Parmæ, 1780.; auct. c. præf. Hufnagel, Erlang., 1781, 8vo. J. B. de Rossi, Annales Typographiæ Ebr. Sabionetens. Appendice aucti ex Italicis Latin. fecit J. Fr. Roos, Erl., 1783, 8vo.; De Rossi, De ignotis nonnullis antiquiss. Hebr. Textus Editionibus et critico earum Usu. Accedit de editionibus Hebr. Bibl. appendix hist. crit. ad Bibliothecam Le-Longio Maschianam, Erlang., 1782, 4to.; De Rossi, Annales Hebr. Typographiæ, sec. xv., Parm., 1795, 4to.; De Rossi, Annales typograph. ab an. 1501 ad 1540, Parmæ, 1799, 4to.; O. G. Tychsen Krit. Beschreib. des Bonon. Pentateuchs vom Jahre 1482, in Eichhorn Repert. vi. 65. seq.; Kennicott. Diss. Gen. No. 255. seq. p. 436, seq. ed. Bruns.)

I. The first complete edition of the Hebrew bible was printed at Soncino, in the Cremonese territory in the dukedom of Milan, A.D. 1488, small fol. The edition of Brescia, 1494, 4to., which Luther translated, generally follows the text of this Editio Princeps. (See J. G. Palm de Codicibus Veteris et N. T. quibus b. Lutherus in conficienda interpret. Germ. usus est, Hamb., 1753. B. W. D. Schulz vollst. Kritik üb. d. gewöhnlichen Ausgaben d. Hebr. Bibel nebst einer Nachricht v. d. Hebr. Bibel welche Luther bei s. Uebersetzung gebraucht, Berlin, 1766, 8vo.) To this first edition of printed bibles belong also, Bibl. Rabbinica, Bombergii ed. Felix Pratensis, 1517, and the smaller editions printed by Bomberg in 1518, and in 1521, 4to.: the edition of Robert Stephanus, 1539-1544, 4to.: and Bibl. Hebraica stud. Seb. Münsteri, Basileæ, 1534, 1536, 4to., two volumes.

II. An independent text, which became the basis of other editions, is contained in the Biblia Polyglotta Complutensia, 1514-1517. Alvarez Gomez de Gestis Francisci Ximenii (Compluti. 1569, fol. L. ii. p. 47.) says that there were bought for 4000 aurei, seven Hebrew MS. copies from various countries, and that these copies were preserved at Complutum (Alcala). From this second edition proceeded Bibl. Polygl. Bertrami ex offic. Sanctandr. 1586, fol. (also ex offic. Commelin. 1599. 1616.)

III. Bibl. Rabb. Bomberg. II. Cur. R. Jac. B. Chajim, Venet. 1525-26, fol. Although Jacob Ben Chajim in this edition followed the Masora more than the MSS., it influenced strongly most of the subsequent editions, and the following belong entirely to this third recension. Biblia Rabb. Bomberg. III., Venet. 1547-1549, fol.; Bibl. Rabb. per Jo. de Gara, Venet., 1568, fol.; Biblia Rabb. Bragadini, Venet., 1617-18, fol.; Bomberg's quarto editions of 1528, 1533, and 1544; the edition by R. Steph., Paris, 1544-46, in 16mo; some alterations were made in the Justinian editions, Venet., 1551, 4to.; 1552, 18mo.; 1563, 4to.; 1573, 4to.; B. Hebr., Genev., 1618, in 4to., 8vo., and 18mo.; B. Hebr., per J. de Gara, Venet., 1566, 4to.; 1568, 8vo.; 1682, 4to.; B. Hebr. typ. Bragadin., Venet., 1614-15, in 4to. and 12mo., 1619, 4to., 1628, 4to., 1707; Bibl. Hebr. Chr. Plantin. Antv. 1566, in 4to., 8vo., and 16mo.; Biblia Hebraica, Hartmanni Fref. ad Viadr. 1595, in 4to., 8vo., and 16mo.; 1598, 4to.; B. Hebr. Zach. Cratonis Viteb. 1586, (1587,) 4to.

IV. Bibl. Polyglott., Antwerp, 1569-72, fol., represent a text composed of the two last recensions. This polyglott contains in the first four volumes the Old Testament with the apocrypha interspersed. From this proceeded the Plantine Hebrew and Latin, Ant., 1571, fol.; 1584, fol.; L. B. 1673, 8vo.; B. Hebr. Lat. Burg. Aurac. in Hisp., 1581, in fol.; B. Hebr. Lat., Genev., 1618, fol.; Bibl. Hebr. Lat. sumt. Fr. Knoch Fref. ad Moen., 1618, fol.; Bibl. Hebr. Lat., Vienn., 1743, 8vo.; Bibl. Polyglott. Par., 1645, fol.; Bibl. Polyglotta, Lond. ed. Brian Walton, 1657, fol.; B. S. quadrilinguia, accur. Christ Reineccio, Lips., 1750, fol., and the manual editions by Reineccius, Lips., 1725, 8vo.; 1739, 8vo. and 4to.; 1756, 1793, 8vo.

V. Bibl. Hebr. cura et studio Eliæ Hutteri, Hamb., 1587, fol. (1588, 1596, 1603), contains a text compounded of the Venice, Paris, and Antwerp editions. Hutter's text is repeated in Hutter's Polyglotta, Nürnberg, 1591, fol.

(this Polyglott was not completed), and in Nisselii B. Hebr. 1662, 8vo.

VI. Buxtorf's octavo edition, Basel, 1611, was the prototype of B. Hebr. typis Menasseh Ben Israel, sumt. Jansonii, Amst. 1639, 8vo. (The editions by Menasseh Ben Israel in 1630-31 and 1631-35 have another text.) Bibl. Rabb. Buxtorf, Bas. 1618-19; Bibl. Rabb. op. Mos. Francfurt, Amst. 1724, fol.

VII. B. Hebr. correcta et collata cum antiquissimis et accuratissimis exemplaribus manuscriptis et hactenus impressis (cum præfat. Johannis Leusden), typis Jos. Athiae, Amst. 1661, 8vo. and 1667, 8vo. From this edition originated the following:—B. Hebr. Clodii Francf. ad Moenum, 1677, 8vo., recogn. a J. H. Majo et ultima resv. a J. Leusdeno, Francf. a M. 1692, 8vo.; Biblia ad optimorum tam impressorum Clodii, Jablonskii, Opitii, quam manuscriptorum aliquot codicum fidem collata; direxit opus J. H. Majus, collat. instituit G. Chr. Bürclin, Frcf. a M. 1716, 4to.; B. Hebr. ex rec. Dan. Ern. Jablonskii, Ber. 1699, 8vo. maj. This sometimes deviates from Leusden according to the authority of manuscripts and the cardinal editions, viz. Bombergiana, Venet. Regia, Basileensis Buxtorfii, Hutteriana, Menassis, ed. 2, Berlin, 1772, 12mo. After this B. Hebr. J. H. Michaelis, Hal. M. 1720, 8vo. maj. Cardinal editions are those 'quæ reliquarum quasi cardinales videbantur,' the authority of which was followed by others. After Athias also B. Hebr. stud. et op. Henr. Opitii Kil. 1709, 4to.; and after this Bibl. Hebr. Züllich, 1741, 4to. B. Hebr. Ever. Van der Hooght, Amst. et Ultraject, 1705, 8vo., is a reprint of Athias's edition of 1667. Van der Hooght's reprint is famous for its accuracy. After this B. Hebr. Sal. Ben Jos. Proops or Props, Amst. 1724, 8vo.; B. Hebr. Lat. (c. vers. Seb. Schmidtii) Lips. 1740, 4to.; B. Hebr. Lat. Car. Frc. Houbigant, Paris, 1753, four volumes fol.; B. Hebr. Jo. Simonis Hal. 1752, 8vo., 1767, 8vo.; Biblia Hebr. Benj. Kennicot. Oxon. 1776-80, fol. (See Bruns de Mendis typographicis editionis Van der Hooght. a Kennicoto non sublatis in Eichhorn's Rep. xii. 225, seq.) Van der Hooght's Bible has been of late frequently reprinted in London. Editio nova, recognita et emendata a Josepho Samuele Frey, Typis Societatis ad promovendam Christianitatem inter Judæos, Lond. 1812, 8vo.; B. Hebr. ad ed. Hooghthianam adornata, Lond. typis et sumptibus Sam. Bagster, 1823. In stereotype, Recognita et emendata a Judah D'Allemand, Typis A. Macintosh, impensis Jacobi Duncan, 1823, 1825, large 8vo.; duodecimo with Hebrew title, 1825; large 8vo. reprinted 1828, 1830, corrected by Hurwitz, 1833. The most beautiful type is employed in the Biblia Hebraica secundum editiones Jos. Athiae, Jo. Leusden, Jo. Simonis aliorumque imprimis Everardi van der Hooght, recensuit Augustus Hahn, Theol. Doctor et Professor in Acad. Lipsiensi, editio stereotypa sumptibus Caroli Tauchnitz, 1831, 8vo. and in duodecimo, 1833.

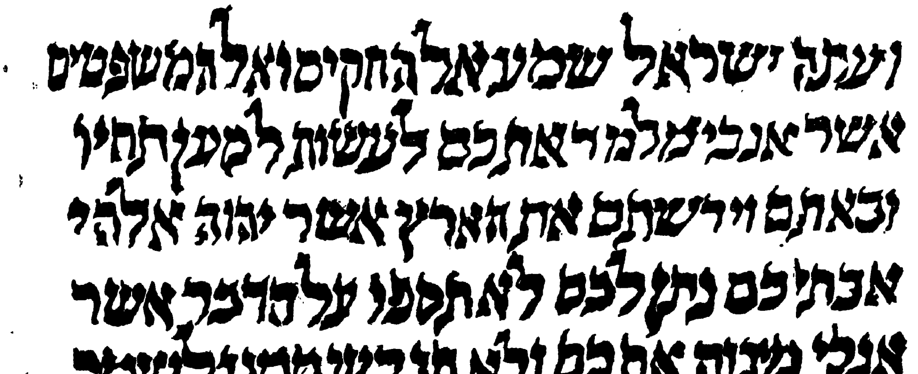
The following is a list of the critical apparatuses by which the text has been purified:—The great and the small Masora, and various readings in the rabbinical Bibles of Bomberg and Buxtorf. Selections of various readings in the editions of Münster, Van der Hooght, and in the מנחת שי, with the critical commentary of R. Sal Norzi, Mantua, 1742-44, four volumes; C. F. Houbigant Notæ criticæ in univ. V. T. libros cum Hebraice tum Græce scriptos cum integris ejusdem Prolegomenis ad Exemplar Parisiense denuo recusæ, tom. i. ii. Francf. a M. 1777, 4to. Comp. J. D. Michaelis Vorrede, zum kritischen Collegio über die drei wichtigsten Psalmen von Christo; J. Chr. Kallii Prodr. examinis criseos Houbigantianae in Cod. Hebr. Hafniæ, 1763, 4to.; Ej. Examen cris. Houbig. in Cod. Hebr. spec. i. Hafn. 1764, 4to.; Seb. Rau Exercitationes phil. ad Houbigant. Prolegomena, 1785, 4to.; Kennicott's Dissertations on the Hebrew text and his Bible. Com. Bruns de variis lectionibus Bibl. Kennicot. in Eichhorn's Repertorium xii. 242, seq. xiii. 31, seq.; Bruns Apologie für Kennicot in Eichhorn's Rep. vi. 173, seq.; Rosenmüller's Handbuch, i. 241, seq.; Bibl. Reineccii ed. J. Chr. Doderlein et J. H. Meisner, Lips. 1793, 8vo.; B. Hebr. dig. et grav. lectionum varietatem adjecit J. Jahn, Viennæ, 1807, 3 volumes, 8vo.; Biblia Hebraica without points, after the text of Kennicott, with the chief various readings selected from his collation of Hebrew manuscripts, from that of De Rossi, and from the antient versions, accompanied with English notes, critical, philological, and explanatory, selected from English and foreign critics by B. Boothroyd, in two volumes, 4to. Pontefract, without the date.

Besides those in the editions of Kennicott, Jahn, &c., we notice the following collections of various readings:—ספר מסורה סיוג לתורה, by Rabbi Meir Hallevi, Berlin, 1761; אור תורה printed in שתי ידות, Ven. 1618, and inaccurately, Amst. 1558. Commentatio critica sistens duorum codicum manuscriptorum Biblia Hebr. continentium quis Regiomonti Borussorum asservantur cum præcipuarum variantium lectionum sylloge, auctore D. Theod. Christ. Lilienthal. Regiomonti et Lipsiæ, 1770, 8vo. The most important work of this kind is by J. B. De Rossi; Variæ Lectiones Vet. Test. ex immensa Manuscriptorum editorumque codicum congerie haustæ et ad Samaritanum textum, vetustissimas versiones, et accuratiores sacræ criticæ fontes ac leges examinatæ, Parmæ, 1784-88; iv. volumina 4to. maj.; and Scholia crit. in V. T. libros, seu supplementa ad varias sacri textus lectiones, Parmæ, 1798.

Among the oldest manuscripts, nearly 1500 in number, which have been collated, is the Laudianus in the Bodleian Library at Oxford, which is considered to be 800 years old: this MS. differs in 14,000 readings from Van der Hooght's text, which is now in common use. Besides this there are many important MSS. at Oxford and in the British Museum in London, one in the library of the Royal Society, one in the Lambeth Library, and one MS. of the Pentateuch in the library of the London University. In the seventh and the following volumes of the *Classical Journal* is a catalogue of MSS. existing in the public libraries of Great Britain, and a very complete list of Hebrew MSS. is prefixed to De Rossi's *Variæ Lectiones:* less complete in Kennicott's *Dissertatio Præliminaris.*.

These codices are known among critics by names like the following:—Carlsruhensis, Viennensis, Cesenæ, in the Malatesta Library at Bologna, Florentinus 2, Mediolanensis 9, Norimbergensis 4, Parisiensis 27, Regiomontanus 2, Parisiensis 24.

To illustrate the appearance of these codices may serve a fac-simile of Deut. iv. 1, 2, from an antient Hebrew MS. of the Pentateuch, called by the Rev. H. Horne Codex Malabaricus; it was brought in the year 1806 from the interior of Malayala by the late Rev. Claudius Buchanan, D.D., and is now preserved in the public library of the University of Cambridge.



ועתה ישראל שמע אל החקים ואל המשפטים
אשר אנכי מלמד אתכם לעשות למען תחיו
ובאתם וירשתם את הארץ אשר יהוה אלהי
אבתיכם נתן לכם לא תספו על הדבר אשר
אנכי מצוה אתכם ולא תגרעו ממנו לשמר

It measures forty-eight feet in length. The whole book of Leviticus and the greater part of Deuteronomy are wanting. The original length was about ninety feet. Its breadth is about twenty-two inches, or a Jewish cubit.

It seems to comprise the fragments of three different rolls. See a 'Collation of an Indian copy of the Pentateuch,' also a collation and description of a manuscript roll of the book of Esther from the Hebrew extant in brazen tablets at Goa, with an English translation, by Thomas Yeates, Cambridge, 1812, 4to.' None of the Hebrew manuscripts is above 800 years old. The reason why the manuscripts of the Old Testament are never found of so high antiquity as the oldest of the New Testament, is that the Jews never suffer their holy manuscripts to exist in a dilapidated state. The manuscripts which begin to be illegible, or contain readings not authorised by the Masora, or are inaccurate, are collected in the גנז, *i.e.* place of deposit, or rather hiding-place in the synagogue. When this place is filled up, all its contents are removed to be buried in a place of the burying-ground chosen for that purpose. The following line may represent a codex about to be buried for being faulty and illegible.

למ[illegible] איש זאת שהיה לוים וישראלים

The unwearied application of the learned in the collation of Hebrew manuscripts has proved that all of them represent nearly the same text that was in the hands of the old translators, which has not suffered any very material alteration in spite of thousands of small changes. This is also proved by the fact that the peculiarities of style which characterise the different biblical writers have not been effaced. The old school of the Buxtorfs and their followers believed in the general correctness of the Masorethical text. The correctness of this opinion, however, has been established not by the opposition of the old school to critical examination, but by the exertions of those critics who for some time overrated the authority of the Samaritan Pentateuch and that of the antient translations, and overstated the faults of the Masorethical text.

Critics now distinguish, 1st, the text before the conclusion of the canon in the parallel passages of the Old Testament; 2nd, the text before the Masora in the quotations of the Talmud; 3rd, the Samaritan and Alexandrine; 4th, the Masorethical.

The first Samaritan MSS. were brought into Europe in the year of our Lord 1620. Achill. Harlay de Sancy directed Pietro della Valle in 1616 to purchase them at Damascus, and presented them to the library of the Oratorium at Paris. There are extant, besides these, a Codex Cottonianus, a Codex S. Genov. at Paris. Compare also the Barberini Triglotta and the Paris and London Polyglotts in Samaritan types, and the Pent. Hebræo-Samarit. ed. Benj. Blayney, Oxon. 1790, in the usual square characters. [See SAMARITANS.]

The earliest translations of the Old Testament were made from a text which belongs to a period from which no manuscripts have been preserved. These translations confirm the significations which are given in our Lexicons to Hebrew words, and show how the biblical text was understood at a period when the original language was still living, or when, at least, many helps to its understanding, which have since disappeared, were still accessible. We shall treat in separate articles on the following most important antient translations:—

The Septuagint is written in the Hellenistic or Jewish Greek language, and was formerly read in many synagogues. Josephus makes more use of the Septuagint than of the Hebrew text; but at a later period, when Christian employed the Septuagint, the Jews rejected it. The Talmud appoints a fast-day on the eighth day of Tebeth, because 'on that day the law was written in Greek through King Ptolemy, and darkness came over the earth for three days; and that day was fatal to Israel as the day on which the calf was made.' (See Megillath Taanith, fol. 50, c. 2 ed. Bas. 1758; Tract. Sopher. c. 1.)

The fragments which have been preserved of the translation made by the Jewish proselyte, Aquila of Sinope, at the commencement of the second century, are very valuable, because they are so literal that they exactly represent the text which was before the eye of the translator. [See AQUILA.] Theodotion only remodelled the Septuagint. His translation of Daniel was used among the Christians instead of the Septuagint. Symmachus wrote better Greek, but translated more freely. Each of these three translated with more accuracy than the translators of the Septuagint.

There are, besides, fragments of three anonymous Greek translations, which have been called, from the places which they occupy in the 'Hexapla' of Origen, Quinta, Sexta, Septima.

Parts of the Old Testament have been translated into a Jewish modern Greek, of which 'Wolfii Bibliotheca Hebræa,' vol. iii. Appendix, and vol. iv. p. 1219-26, contains curious specimens printed in Hebrew type.

We exhibit here the first three verses of Genesis, in the rare Versio Judæo-Græco-Barbara, belonging to the Oppenheimer library at Oxford:—

איש ארכי אפלאשין או תיאוש טון אורנו קי טין איי :
קי אייש אטון אבישום קי אפניזמוש קי שקוטוק איפי
פרושופא אבישו קי אנמוס טו תיאו אנפיטיי איפי
פרושופא טון נירן :
קי איפן או תיאוס אש איני פוש קי איטון פוש :

(1.) Εἰς ἀρχῇ ἔπλασεν ὁ Θεὸς τὸν οὐρανο καὶ τὴν ἴγι.

(2.) Καὶ ἴγις ἤτον ἄβυσσος καὶ ἀφανιασμὸς, καὶ σκότοκ ἐπὶ προσώπῳ ἀβύσσου, καὶ ἄνεμος τοῦ Θεοῦ ἀναπετάει ἐπὶ προσώπῳ τῶν νερῶν.

(3.) Καὶ εἶπεν ὁ Θεὸς· ας εἶναι φῶς, καὶ ἤτον φῶς.

According to Origen, Lucianus and Hesychius bestowed their critical labours upon the text of the Septuagint; and their editions came into public use, but have entirely disappeared. It appears from Georg. Syncell. Chronogr. p. 203, Ἐν ἑνὶ ἀντιγράφῳ λίαν ἠκριβωμένῳ ἐκ τῆς ἐν Καισαρεία τῆς Καππαδοκιάς ἐλθόντι εἰς ἐμὲ βιβλιοθήκης, ἐν ᾧ καὶ ἐπεγέγραπτο, ὡς ὁ μέγας καὶ θεῖος Βασίλειος τὰ ἐξ ὧν ἐκεῖνο ἀπεγράφη, ἀντιβαλὼν διορθώσατο βιβλία. Comp. Carpzou crit. sacra, p. 533, that the labours of Basilius the Great on the Septuagint consisted in his care to obtain correct copies.

Of late, the English Bible Society has encouraged Bishop Hilarion in prosecuting his translation into modern Greek, parts of which have been published; *e.c.* the Psalms in elegant modern Greek.

In the days of St. Augustine, several Latin translations existed: among these he preferred the Itala, which was in more general use, and which had originated in the first period of Christianity. The fragments of the Itala still extant prove that it was made from the Septuagint. Hieronymus corrected it about the year A.D. 382; but the greater part of his labours was lost during his own lifetime, and he could not gratify the desire of Augustine to restore the loss, because he had not sufficient scribes at his command.

According to Abulfaragius, the Syrians had, along with the Peschito, another translation of the Septuagint, which has been called, according to an erroneous reading of Pococke, the Figurata.

Of the Syrian translation by Philoxenus, bishop of Hierapolis, we know so little that we cannot say whether it was the same with the Figurata.

In the Ambrosian library at Milan there are the Psalms, Job, Proverbs, Ecclesiastes, Song of Songs, the Wisdom of Solomon, Sirach, the twelve minor prophets, Jeremiah, Baruch, Lamentations, Daniel, Ezekiel, and Isaiah, in an Hexaplar Syriac translation by Paul, bishop of Tella, of the year 616. Of the same translation there is a copy at Paris of the fourth, or, as we call it, the second book of Kings. This version was translated into Arabic by Hareth Ben Senan, A.D. 1486, and is preserved in the Arabic at Paris and at Oxford.

The Ethiopians have, in the Geez, an anonymous translation of the whole Bible, the origin of which cannot be earlier than the fourth century. This version was made by Christians from the Alexandrine Greek translation, but it is now used by Jews also. Of this there are several complete manuscript copies in Europe, a list of which is given by Ludolf: parts of it have been printed. Other copies have been brought to Europe by Bruce and Rüppell.

There exists also a translation in the dialect of Lower Egypt, the so-called Coptic or Memphitic; and another in the dialect of Upper Egypt, the Sahidic, or Thebaic. The origin of these translations, parts of which have been printed, belongs probably to the end of the third, or the commencement of the fourth century. Both were made from the Septuagint.

The Armenian translation by Miesrob was executed with the assistance of Johannes Ekelensis and Jos. Palnensis, about A.D. 410. With this translation, Miesrob gave to the Armenians an alphabet. He followed the Septuagint, and in Daniel the Greek of Theodotion. Miesrob's translation is said to have been interpolated in the sixth century according to the Peschito, and in the thirteenth century according to the Vulgate.

The Georgian or Grusingian translation was made in the sixth century, and follows the Septuagint.

The Sclavonic translation is said to have been made in the ninth century, from the text of the Septuagint: but, according to Alter, it originated from the Itala, and was altered in the fourteenth century according to Greek MSS.

It is unnecessary in an article so limited as the present to do more than name the Arabic translations, the Veneta, the Targumim, the Samaritan translation, the Peschito, the Vulgate, the Gothic, the Anglo-Saxon and Persian translations, &c.

The Hebrews had, like other nations, their prose and poetical styles. The poetical style is distinguished by great boldness and freshness of expression, and by a rhythmical movement or cadence of language. This rhythmus occurs in various degrees. There are parts in the prophets, and in the book of Ecclesiastes, which are scarcely elevated above the level of prose. The gradual ascent from prose to rhythmus, and the descent from rhythmus to prose, constitutes one of the beautiful characteristics of Hebrew poetry. The rhythmus of syllables is, in Hebrew, so free, that some have preferred to call it 'numerus by accentuation.' This numerus consists usually in a free mixture of iambics, trochees, amphibrachs, and anapæsts.

'The books and passages of the Old Testament, which are composed in a poetical style, have such a diversity of character, from the various times at which they were written, that it is necessary to distinguish them into several periods. Four of these periodical divisions may be conveniently adopted.

'The first embraces short historical songs, and oracular sentences: simplicity and obscure brevity are the characteristics of these. The second æra is that of heroic song. In the times of the Judges, the actions of the protectors and defenders of Israel were celebrated in this style. Of the same description are inspiriting war-songs, and songs of triumph. The third period commences with the schools of the prophets, founded by Samuel, in which the art of poetry was enlarged, refined, and ennobled. Historical poems, pastorals, and hymns in praise of God, and war-songs, were produced by these schools. At length, under David and Solomon's reign, we approach the golden age of Hebrew poetry, to which succeeded the sublime oracles of the prophets. They uttered, in solemn strains, promises and threatenings, and described better times to come in imagery borrowed from the golden age. The fourth epoch coincides with the time about and subsequent to the Babylonian captivity. Then the fiery energy of the prophetic poetry was lost, and plaintive songs of woe were blended alternately with joyful strains, sung in hope of their return to Zion, and with cheerful festive hymns, in which the expectation of a universal kingdom of God on earth was expressed in various ways.

'With respect to the external form, the various species of Hebrew poetry may, upon the whole, be described by the names given to their poetic compositions by the Greeks and Romans; but it must not be imagined that their arrangement and disposition are of the same kind. The following may be considered as distinct species of Hebrew poetry:—

'First, short traditional poems, containing anecdotes of families, for the purpose of handing them down to posterity. Second, longer historico-religious poems; as, for example, 1 Moses (Gen.) i. and ii., also Psalms cxxxv. cxxxvi.; and poems of a mythic form, 1 Moses (Gen.) iii. xi. Third, odes: these are subdivided into—1. Hymns, songs of praise, and thanksgiving for divine worship; 2. Common odes, in which other important objects were expressed in sublime imagery, and, finally, 3. War-songs, which often ascend to the dignity of the ode. Fourth, elegies, lamentations, pastoral lays, and songs in praise of love. Fifth, songs of a middle species, which do not attain the character of the ode. Sixth, didactic poems, of which there are—1. Many short ones in the Psalms; and, 2. Some of greater length in Job and Ecclesiastes. To these latter belong—3. Parables, fables, and allegories; and, finally, 4. Single sententious apophthegms, or proverbs.

'Descriptions of the separate prophetical books are given in the Introductions (such as those of Eichhorn, Jahn, Bertholdt, and De Wette) to the Old Testament: but those books must be divided into two classes, in order to facilitate their interpretation, viz., those written before, and those written after the captivity, as the character and contents of the latter differ materially from those of the former writings.

'The first period of those writings is that between Moses and the captivity. The prophets who lived in this period laboured to oppose idolatry; and continually exercised this grand theme of their discourses and denunciations in new forms, and under various images and conceptions. They announced on these occasions the approach of divine justice in the devastation of the land, and the carrying off of its inhabitants, but they at the same time opened a view into a distant state of future felicity, the return of the better part of the Israelites to the true God, the return of many of themselves out of all tribes to Judæa, and their re-union as a people. They already saw many heathens, proceeding with the Jews towards Jerusalem, for the observance of the same worship; they saw a divine kingdom, whose borders were to be continually enlarging.

'The other period is that from the exile to Malachi. The prophets who lived during this time sustained the hopes of Israel; but they at the same time directed their exhortations to the promotion of the true worship of God, and denounced punishment against hypocritical offerings, against indolence in doing good, against unrighteousness, and many other sins, as being the cause of preventing God from fulfilling, in their complete extent, his promises to the citizens of the newly-restored Jerusalem. Some of the prophets already foresaw a time of severe judicial punishments to be inflicted by God on the refractory Israelites.' (Seiler's *Hermeneutics.*)

The English Bible.—No complete translation appears to have been made in the Saxon times into the language then spoken in England. By some writers Bede is said to have made such a translation, but this is now generally understood to be a mistake. That he translated portions of the Scriptures is, however, certain. One of the best authenticated facts in his life is, that he was employed in translating the Gospel of St. John into Saxon at the time of his decease. The early writers who relate this fact differ respecting the extent to which he had proceeded in translating this Gospel. No evidence can be produced that the whole of the Scriptures was, by any person, rendered into Saxon. But of the more important portions Saxon versions still exist in manuscript. We shall notice three of the most remarkable copies:—1. A manuscript of the Psalms in Latin, with an interlinear Saxon version. This is now in the Cottonian Library at the British Museum, where it is numerated Vespasian A. i. 2. A manuscript of the Gospels in the same library, numerated Nero D. iv. This contains the Latin text, with an interlinear Saxon version. Both these manuscripts are of singular beauty, and impress the mind with a strong feeling of respect for the monks of Lindisfarn, in whose house, and probably not later than the eighth century, they were executed. 3. Another manuscript of the same class is at Oxford, where it is known by the name of the Rushworth Gloss, on account of its having belonged to Rushworth the historical writer. This manuscript contains the Gospels only. Other manuscripts exist of Saxon versions of portions of the Scriptures in many libraries; and there are notices in writers on Saxon affairs of several persons who, beside Bede, were employed in the translation of these important writings into the vernacular tongue. At the Reformation, when the work of translating the Scriptures met with opposition from the church, it was a point of some importance to draw the public attention to the fact that versions into the vernacular tongue were no novelties in England. It was with this view that Parker, archbishop of Canterbury, encouraged Fox, the writer of the Martyrology, to prepare an edition of the Gospels in Saxon, which he did, and published it in 1571. Another edition, the result of the collation of a greater number of manuscripts, was published in 1638, and again in 1665. This was the joint work of Junius and Marshall. They gave at the same time the text of Ulphilas's version, into the language called the Mæso-Gothic, a kindred, perhaps the parent, language of the Saxon.

Devout persons seem to have employed themselves in rendering portions of the Scriptures into the language spoken in this country, when what we call Saxon was becoming what we now call English. It is thought that the whole of the Scriptures had been translated in the thirteenth century. It is, however, certain that in the fourteenth century, not single and separate portions only were translated, but the whole of the books comprehended in the Sacred Canon, and that they were put together in order as they were found in the Latin originals, so as to form a volume answering to what we mean when we speak of the Bible. There are two persons, both of the age of King Edward III., who are said to have executed this work. The one, John de Trevisa, a native of Cornwall, was educated at Oxford. He translated the work of Bartholomeus, 'De Proprietatibus Rerum,' and the 'Polychronicon' of Higden—the one the most popular book in the philosophy of the age, the other in the history. Caxton, writing not a century after the time, says that he also translated the Holy Scriptures, but this is now matter of uncertainty. But there is no doubt that Wickliffe did translate the whole Bible, or gathered together translations which made an English Bible. Many copies of this volume were made about the time when it was completed, which was about a century before the introduction of printing into England. Wickliffe died in 1384.

Wickliffe's version of the Scriptures is deeply interesting, on account of the circumstances under which it was produced, and its connexion with a favourite English name. It is of some importance in Biblical literature, as showing what Latin version was in his time regarded as of the highest authority in England, and also in what light certain questions in theology were viewed by that early Reformer. It is also curious as a monument of the state of the language in the middle of the fourteenth century. Foreign scholars have reproached us for not having published an edition of it. Proposals are now before the country for such a work, but they have been but coldly received. The New Testament from this version was published by John Lewis, a clergyman of Margate, in 1731, and reprinted under the care of Mr. Baber of the British Museum in 1810.

From the time of Wickliffe the authorities in the English church did whatever they could to discountenance the circulation of the Scriptures in the ordinary language of the people. It was regarded as a measure which was likely to produce heresies, and as a work which could never be executed with a sufficient degree of exactness. The time was, however, approaching when an opposition which was irresistible would be made to the church in this point.

It is to the resistance which was made by the ecclesiastical authorities of the time that we are to attribute the remarkable fact, that, though the art of printing was introduced into England in or about 1474, yet no English Bible or Testament was printed till 1526, and then at a foreign press.

To William Tyndal we owe a translation of a large portion of the Scriptures into the English tongue, next in antiquity to Wickliffe's. Tyndal was acquainted with Luther, whose advice and assistance he is reported to have had in his translation. He lived much abroad, and before 1526 he had completed an English version of the New Testament. Of this he printed in that year two distinct editions; one in quarto at Cologne, another in duodecimo at Antwerp. Perfect copies of either of these editions are not known. The few imperfect copies which exist of this, the *Editio Princeps* of the English New Testament, and very few they are, are treasured as the choicest book curiosities. Tyndal proceeded in his work of translation, and not less vigorously in superintending successive editions of his New Testament through the press. They were bought up and burnt in England; but this only supplied him with the means of printing other editions with such corrections and improvements as were suggested to him. He is said to have also printed a translation of the Pentateuch, and it is certain that he did translate those five books of Moses, and also many other books of the Old Testament. He did not, however, commit to the press any complete translation of the whole Scriptures. Tyndal was put to a cruel death at Filford, near Antwerp, where his translation first appeared, in 1536.

Another person who at that early period engaged in the work was Miles Coverdale, a friend of Tyndal. He produced a complete English Bible, composed of Tyndal's translations, as far as they went, and his own. This was the first edition of the Bible in English. It was followed by several other publications of the English Bible in the interval between 1535 and 1611, when the present authorized version was first published. Of these we shall give a catalogue of the most remarkable, observing generally, that of each of these there were several distinct re-impressions, and of some of them many.

1. *Coverdale's Bible.*—This was printed at Zürich, it is believed, in 1535, and dedicated by Coverdale to Henry VIII. It was favourably received by the court. In the next year, Cromwell, the king's vicar-general and vice-gerent in ecclesiastical matters, enjoined that a copy of this translation should be laid in the choir of every parish church in England, for every one to read at his pleasure.

2. *Matthewe's Bible.*—This also was printed abroad, but at the expense of two English printers, Grafton and Whitchurch: the date is 1537. The name of Thomas Matthewe, whose edition it was said to be, is feigned. The real editor was John Rogers, the first person burned for heresy in the reign of Mary. The text is that of Tyndal and Coverdale slightly altered.

3. *The Great Bible, or Cranmer's.*—The Bibles hitherto published had been but the work of private persons. Cranmer, who was at that time archbishop of Canterbury, had, from the time when Coverdale's Bible appeared, been anxious to engage the bishops in the preparation of an English Bible, which should go to the people under their express authority. He found them not very eager to engage in the design. It is supposed that Coverdale had much to do in the preparation of this edition. The text is, in the main, the same with his. The preface was written by Cranmer. It was finished at the press of Grafton and Whitchurch in April, 1539.

4. *Taverner's Bible.*—This also appeared in 1539. The editor was Richard Taverner. The text is formed on that of Matthewe's Bible.

There were eleven impressions of the English Bible in the reign of Edward VI., but they are considered as only re-impressions of one or other of the editions above mentioned.

5. *The Geneva Bible.*—During the reign of Mary, some of the divines who had been the most forward in promoting the Reformation took refuge at Geneva. Among these was Coverdale, who seems to have regarded the diffusing of the Holy Scriptures in the English tongue as his peculiar province in the labour of reformation. He and some other of the Protestant exiles, especially Gilby and Whittingham, set themselves to prepare another edition, to be accompanied with notes. They were employed in seeing it through the press when the death of Mary and the accession of Elizabeth opened a way for their return. Some remained behind to finish the work, which appeared in 1560. This long continued to be the favourite Bible of the English Puritans and of the Scotch Presbyterians. Not fewer than fifty impressions of it are known, and there were probably more. Both in the text and notes there is a great leaning to the system of Calvin and Beza, with whom the exiles at Geneva were intimately acquainted. It scarcely deserves to be mentioned that this edition is often called the 'Breeches Bible,' on account of a rendering given in Genesis iii. 7.

6. *The Bishops' Bible, or Parker's*, so called from Matthew Parker, archbishop of Canterbury, first appeared in a large folio in 1568. Parker employed learned men to review the previous translations, and compare them with the originals. This edition exhibits, in consequence, some material variations.

7. *The Douay Bible*, of which the New Testament was first printed at Rheims in 1582, and the Old Testament at Douay in 1609-10. This is the Catholic version. Cardinal Allen is understood to have had a principal share in this work.

This brings us to the period of King James's translation. Early in the reign of King James I. there was a conference of divines of different opinions at Hampton Court, for the settling the peace of the church. In this conference much was said concerning the imperfections of the existing translations of the Scriptures. The king himself, who was often present at these meetings, expressed a strong opinion on that point of the debate. 'I wish,' said he, 'some special pains were taken for a uniform translation, which should be done by the best learned in both universities, then reviewed by the bishops, presented to the privy council, and, lastly, ratified by royal authority, to be read in the whole church, and no other.' Out of this speech of the king's arose the present English Bible; for the suggestion soon ripened into a resolution. As this is the Bible which has now for more than two centuries been the only Bible allowed to be read in the English church, and as it is also the Bible universally used in dissenting communities, we may be expected to give a more extended notice of it than of the former editions. Fifty-four of the persons in that age most distinguished for that particular species of learning which such a duty required were selected for the work, according to the king's suggestion: finally, forty-seven of them undertook it. They divided themselves into six independent classes, to each of which a certain portion of the work was assigned. Each person in the class was to produce his own translation of the whole committed to them: these several translations were to be revised at a general meeting of the class. When the class had agreed upon their version, it was to be transmitted to each of the other classes, so that no part was to come out without the sanction of the whole body.

Two of the classes sat at Westminster, two at Oxford, and two at Cambridge. The instructions which they received from the king were, that they should adhere to the Bishops' Bible, which was then ordinarily read in the churches, making as few deviations from it as possible. They were, however, to use the other versions, and to consult the translations which had been made into other modern languages; and they were to keep in the old ecclesiastical words, such as church, &c. When a word had divers significations, 'that should be kept which had been most commonly used by the antient fathers, being agreeable to the propriety of the place, and the analogy of faith.' No marginal notes were to be used, except for the further explication of some Greek or Hebrew word. References to parallel passages might be given. They were to call in the assistance of any learned man who was known to have made this subject his study.

They were employed upon the work for three years, namely from 1607 to 1610; proceeding with that deliberation and care which so weighty an undertaking required. The names of the divines engaged in it, and the portions are known which were committed to each class, are preserved. If we say that there are few names among them which have acquired a lasting celebrity, we are only saying of them what is the usual fate of divines. The name of Bishop Andrews is the first in place and the first in celebrity. It is believed that Bancroft, then Archbishop of Canterbury, though not one of the professed translators, had much to do in the superintendence of the work. It came forth from the press of Robert Barker in 1611.

This is then the great æra in the history of the English Bible. From that time to the present there has been no serious intention entertained in the church of any revision of this translation. It is admitted universally that it is in the main an admirable translation. But many persons in the church who have thought that, excellent as it confessedly is, it is not the best possible translation; and that it seems as if the time was arrived for revising the work of the divines of the days of King James, especially since the general principles of translation seem now to be better understood than heretofore, and the investigations of men of learning in the manuscripts of both the Old and New Testament in the originals have led to the establishment of a text which is allowed to make a nearer approach to the text as left by the original writers, than that which was used by King James's translators.

It has however been found that every subsequent edition of the Bible has deviated not only in spelling, but slightly also in other respects, from the original edition of 1611. Thus, the Rev. T. Curtis has lately shown that the use of the distinctive Italic and capital letters in that edition has by no means been scrupulously copied in those that have followed it. In this respect it appears, however, that the alterations which have been made are really amendments, by which the typography of the modern editions is made more conformable to the principle adopted by the translators. On the other hand, it has been shown, and especially by the Rev. Dr. Lee of Edinburgh, both in a pamphlet published by him in 1826, and in his evidence given before a committee of the House of Commons in 1831, that the prohibition against the received version of the Bible being printed by any persons except the king's printers and the two English universities has by no means secured that accuracy in the impressions with a view to which it is professed that the restriction is maintained. Thus, in an Edinburgh edition of 1816, we have in Luke vi. 29, 'Him that taketh away thy cloak, forbid to' (for 'not') 'to take away thy coat also;' and 1 Cor. xiv. 40, 'Let all tongues' (for 'things') 'be done decently and in order.' So, in a stereotype edition, published by the king's printers in England in 1819, in 1 Cor. viii. 6, instead of 'To us there is but one God,' the reading is 'To us three is but one God.' Many of the older editions abound in such errors to a much greater extent. Mr. Curtis has also pointed out, even in some of the most recent editions, the occasional occurrence of such errors as 'heart' for hart,' 'son' for 'sun,' 'forth' for 'four,' &c.

But while nothing has been done by authority, many persons have produced new and, as they presume, improved translations of particular books. Dr. Geddes, a Catholic divine, but who had no particular attachment to his church to influence him in his version, published a translation of the historical books of the Old Testament. Lowth, Bishop of London, and Dodson, a learned layman, both published translations of the Prophecy of Isaiah; Blayney, a translation of the minor prophets, and Stock, an Irish bishop, of the book of Job. Other translations of other books of the Old Testament have appeared, nor have there been wanting those who have attempted the too arduous task of translating the whole of these books. Numerous translations have been published of the New Testament, of which we may particularly single out as the works of men of learning and high character that by Gilbert Wakefield and that by Newcome, the Archbishop of Armagh.

Still more numerous have been the editions of the English Bible in the version of King James, with notes, paraphrases, and practical expositions. Our limits will not allow of our entering upon an enumeration of these works. We must, however, name as works which are highly esteemed, the Family Bible, prepared by the Rev. Thomas Scott, rector of Aston-Sandford, in Buckinghamshire, a clergyman of what are called evangelical sentiments; the Commentary on the Bible by Adam Clarke, LL.D., a leading minister among the Wesleyan Methodists; and the Family Bible of the Rev. Charles Wellbeloved, of York, a Presbyterian minister of Unitarian sentiments, a work at present incomplete, in which the learned author has united valuable critical matter for the accomplished scholar, with much useful information for the unlearned reader.

BIBLE SOCIETIES. Associations, supported by voluntary contributions, for the general circulation of copies of the Sacred Scriptures, may be regarded as belonging peculiarly to the present century. Whatever had previously been done, either by societies or individuals, in the way of translating or printing the Bible, is insignificant when compared with what has been done in the last thirty years, from 1804 to 1835. Previous to the formation of the British and Foreign Bible Society, the associations in Great Britain which included among their objects the circulation of the Bible were:—

1. The Society for the Propagation of the Gospel in New England, originally incorporated by an ordinance of parliament in 1649, and re-incorporated in 1661, after the Restoration. The missionary Eliot, known as the Apostle of the American Indians, after labouring to reduce the language of the tribes then surrounding the infant colony to writing, effected a translation of the Bible into it, which was printed in 1663 at the expense of the corporation. This edition of the Bible, which is dedicated to Charles II., contains the Psalms of David, attempted to be done into Indian metre, which Cotton Mather tells us were used in the congregations of the converted natives.

2. The Society for Promoting Christian Knowledge, established in 1698. It had caused an edition of the New Testament to be printed in Arabic, the whole of the Scriptures in Manx, and four editions of the Scriptures in the Welsh language.

3. The Society for the Propagation of the Gospel in

Foreign Parts, established 1701. This and the preceding institutions were under the entire management of members of the Established Church.

4. The Society in Scotland for Propagating Christian Knowledge, incorporated in 1709. It had distributed the Scriptures in the Gaelic language.

5. The Society for Promoting Religious Knowledge among the Poor, established 1750. The subscribers were entitled once in two years to copies of the Scriptures or other works published by the society, at a reduced charge.

6. The Bible Society, established in 1780, for the purpose of circulating the Scriptures among soldiers and sailors exclusively. In about twenty years it had distributed about 30,000 copies.

7. The Society for the Support and Encouragement of Sunday Schools, established in 1785. It provided the Sunday schools with copies of the Bible and Testament, and with spelling-books.

8. The French Bible Society, established in London in 1792, for the purpose of distributing copies of the Scriptures in France. This institution had made arrangements with a printer for an edition of the Scriptures in the French language, when its operations were entirely stopped by the Revolution. At the peace of Amiens it was discovered that the printer with whom the contract had been made, and who had received a sum of money on the society's account, had been ruined in the interval, and was unable to complete his engagements.

Such were the means in existence previous to the close of the last century for ensuring the general circulation of the Scriptures.

The most important of the above associations, in fact the only one which could attempt the circulation of the Bible on a large scale, was the Society for Promoting Christian Knowledge. Its efforts, however, do not appear to have been commensurate with the increasing demand. The following statement attributes to a tardiness in its operations the formation of the British and Foreign Bible Society:—

In 1787 a clergyman in London, who had been applied to for Bibles by a brother clergyman in Wales, wrote to the latter, stating that he had received twenty-five copies from the society for distributing Bibles among the soldiers and sailors; and that he was collecting money to send more, which he bought of the Society for Promoting Christian Knowledge, 'who alone in London have got any Welsh Bibles.' A year afterwards the same individual wrote to his correspondent in Wales, stating that 'there was a prospect of obtaining, through the assistance of another society, and with the help of Mr. T.'s purse, no less a number than 1000 Welsh Bibles; but the society, viz. the Society for Promoting Christian Knowledge, refuses to part with more than 500, and that at a price which altogether makes 5*s.* 6*d.* each. This has entirely defeated the design, so far as I am concerned in it.'

Towards the close of 1791, a clergyman who had been visiting Wales alluded, on his return to London, to the scarcity of Bibles:—'I heard great complaining amongst the poor for want of Bibles, and that there were none to be had for money.' A fresh series of efforts were made in order to induce the Society for Promoting Christian Knowledge to publish another edition of the Welsh Bible; and a correspondence was entered into with the society, which may be seen in Dealtry's *Vindication of the British and Foreign Bible Society.* The object of this correspondence was to induce the society to undertake an edition of 10,000 Bibles for circulation amongst the Welsh, and the applicants expressed their willingness 'to take and pay for 5000 as soon as they were printed.' At length, in July, 1792, terms were agreed upon with the society, and the wishes for a supply of Bibles seemed on the point of fulfilment. On the 29th of October, however, the individual who had conducted the negotiations with the society complained of its 'dilatory, indecisive, and reluctant' conduct. The society could not be made to believe that 'a large number of Bibles could be got off;' it seemed averse to incur the expense of a supply, although not likely to be more than from 1500*l.* to 2000*l.* In fine, the society surrounded the subject with so many difficulties that for the present it was reluctantly abandoned.

At length, in 1796, after an interval of about four years, during which it may be presumed the society continued to be urged on the point, an edition of the Welsh Bible, Common Prayer, and Singing Psalms, to the amount of 10,000, with 2000 extra Testaments, was ordered to be printed. In 1799 copies were ready for delivery, and the society liberally offered them on moderate terms. The whole of the edition was soon disposed of, as thirty years had elapsed since the last edition had appeared. The wants of the Principality having, however, only been partially satisfied, the demand for Bibles on the part of those who had not participated in the recent supply became louder than before. Application was made in the year 1800 in order to ascertain if the society were disposed to undertake another edition. In 1802 the hope of engaging the society to enlarge the supply was abandoned. The plan of contracting for a supply of Welsh Bibles without the co-operation of the society was then agitated for the first time. It was suggested by the Rev. Thomas Charles, an ordained minister of the Established Church, but who was at the time officiating in the congregations of the Welsh Calvinistic Methodists. On the 7th of December, 1802, the subject of the scarcity of Bibles in Wales having been introduced by Mr. Joseph Tarn in a circle of friends, Mr. Charles, who happened to be visiting London, and was present, proposed raising by voluntary contributions a sum sufficient for printing an edition. He insisted upon the urgency of applying to 'new and extraordinary means' for effecting this purpose. In the course of the evening, the Rev. Joseph Hughes, a Baptist minister, suggested the outline of a plan for the *general* circulation of the Scriptures; and a call was made upon him to prepare an address in which the subject might be presented to public consideration. The matter was soon after laid before the late Mr. Wilberforce, Mr. Charles Grant, now Lord Glenelg, and other men of like views. The Rev. C. F. A. Steinkopff, Lutheran minister at the Savoy church in London, offered to make inquiries in the course of a continental journey he was about to undertake, as to the circulation of the Scriptures in that quarter. A similar course was contemplated with respect to Great Britain and Ireland.

The occurrences detailed above took place prior to the end of May, 1803. By this time the appeal which Mr. Hughes had been called upon to prepare was finished. Its title was: 'The Excellence of the Holy Scriptures, an Argument for their more general Diffusion.' The rudiments of the Bible Society were developed in this address, and having been extensively circulated, it was deemed in the month of January, 1804, that a sufficient period had elapsed for the discussion of its merits, and that the time had arrived for putting the plan into activity. Samuel Mills, Esq., who had prepared an outline in the preceding year, now completed the details of the plan. The projected society had at first received the name of the 'Society for Promoting a more extensive Circulation of the Scriptures both at Home and Abroad;' but it was now changed to that of 'the British and Foreign Bible Society.'

On Wednesday, March 7th, 1804, a public meeting, convened by a circular address, was held at the London Tavern, Bishopsgate-street, to discuss the means of forming the society. The attendance consisted of about 300 individuals of various religious denominations. The first and second resolutions moved, were as follows:—1. 'That a society shall be formed, with this designation, the "British and Foreign Bible Society," of which the sole object shall be to encourage a wider diffusion of the Holy Scriptures.' 2. 'That this society shall add its endeavours to those employed by other societies for circulating the Scriptures through the British dominions, and shall also, according to its ability, extend its influence to other countries, whether Christian, Mahometan, or Pagan.' Seven other resolutions relating to the organization of the society were passed unanimously. A committee was formed, 700*l.* were at once subscribed, and the institution was considered to be fairly in existence.

On the 12th of March, 1804, the committee met to complete the organization of the institution. The thirty-six individuals composing the committee comprised men of various religious opinions. It must be confessed that they were surrounded with considerable difficulties. Every step in fact was on delicate ground, and this was more especially manifest when an individual proposed the appointment of the Rev. Joseph Hughes to the office of secretary. This motion was opposed by the Rev. J. Owen, afterwards one of the secretaries and the historian of the Bible Society, who insisted in strong terms on 'the impropriety and impolicy of constituting a dissenting minister the secretary of an institution which was designed to unite the whole body of Christians, 'and for which its directors had evinced so laudable an anxiety to obtain the patronage and co-operation of the established church.' The individual who had moved Mr. Hughes's appointment as well as the committee generally, saw the propriety of Mr. Owen's objections; but it was fortunate that the opportunity had arisen which called them forth, as they led to an arrangement, the principle of which was at once so judicious and liberal, that when acted upon, as it has been in all the movements of the society, it has constituted one of the chief corner-stones of its stability and success. It was accordingly moved that the Rev. Josiah Pratt, B.D., the secretary to the Church Missionary Society, who had been pointed out by Mr. Owen as a fit individual, should be appointed secretary, in conjunction with the Rev. Mr. Hughes. The creation of another office was then suggested, in order that the foreign churches might be represented in the society; and the Rev. Mr. Steinkopff was appointed foreign secretary. Thus, as Mr. Owen remarks, 'The progress of an hour carried the committee on, from the hasty suggestions of a short-sighted attachment to the wise determination of a liberal policy.' To prevent the operation of temporary feeling in the appointment of the governing body, the future proportion of churchmen, dissenters, and foreigners on the committee was distinctly defined. This body was to consist of thirty-six individuals, viz., six foreigners, resident in or near the metropolis, fifteen churchmen, and fifteen dissenters; the whole of the thirty-six being laymen. The clergymen and ministers generally had a seat and vote on the committee on the same terms by which they became members of the society. Mr. Pratt having voluntarily resigned his office, Mr. Owen was appointed secretary in his place.

On Wednesday, May 2nd, 1804, a general meeting of the subscribers and friends of the institution took place, at which Lord Teignmouth was appointed president of the institution. On the 5th of May, the bishops of London, Durham, Exeter, and St. David's, recognised the society by sending in their names as subscribers, and in June they accepted the office of vice-presidents.

Such was the formation of the British and Foreign Bible Society; and its subsequent history involves that of all similar institutions which it has called into existence in every part of the world. The first foreign bible society was formed at Nuremberg in 1804: but the seat of its operations was afterwards transferred to Bâsle. This was termed the German Bible Society. In 1805, a society was established at Berlin, which afterwards, in 1814, became merged in the national institution of the Prussian Bible Society, which in the first twenty years of its existence has distributed 717,977 copies of the Scriptures. Notwithstanding the war, which for a time would appear to have presented a formidable obstruction to the progress of such associations, the continent of Europe may be described as having become, in a few years, literally covered with bible societies. In St. Petersburg, the Russian Bible Society was established, not merely with the sanction, but by the formal authority of the Emperor Alexander, during the year 1813. After the accession of the present emperor, Nicholas, the operations of this society, and of all its auxiliaries, amounting in number to 289, were suspended by an imperial ukase. The motives which led to this do not distinctly appear; though probably arising from the dissensions amongst the hierarchy of the Greek church, numbers of whom viewed with jealousy the efforts which were making to disseminate the scriptures; but permission was afterwards given to establish a *Protestant* Bible Society, for the purpose of supplying the Protestants in Russia with the Scriptures. A society was formed in Paris, in 1818. This now exists under the title of the French and Foreign Bible Society.

There are at present societies or agents at Toulouse, Frankfort, Colmar, Mühlhausen, various places in Switzerland, Würtemberg, Saxony, at Warsaw, Cologne, Elberfeldt, Neuwied, Geneva, Dorpat, in Sweden, Norway, and Denmark, in Belgium and Holland. In Spain, Portugal, and Italy, efforts are making to introduce the Scriptures. Agents are also in Greece, and at Smyrna, Bucharest, Constantinople, Damascus, Astrachan, Selinginsk, and Tunis, &c., exclusive of the extensive connexions of the Society throughout the British dependencies in every quarter of the world.

In the United States of America, the first society which was formed was that of the Philadelphia Bible Society, in 1808. This example was imitated in numerous other places of the Union; and in 1816 the idea of a general national institution was carried into execution, by the establishment of the American Bible Society.

It will be unnecessary to trace further the progress of the formation of other societies in different parts of the globe, the details being in all cases similar. We therefore return to the immediate history of the British and Foreign Bible Society.

The first application of the society's funds to printing the Scriptures in a foreign language took place in 1804, when 2000 copies were proposed for circulation among the Mohawk Indians. At this time the foundation was laid of a library, which has become by frequent accessions a valuable and curious collection of biblical literature. The society was very early called upon to exercise its judgment and discretion in regulating the movements which it had produced. It had adopted from the first, as a fundamental principle, the resolution of circulating only the authorized English version of the Scriptures without note or comment. The individual who proposed the Mohawk version was well known to the Indians, and thinking to prepare for the more favourable reception of the Scriptures among them, he wrote an address every way calculated to effect this purpose, which he caused to be pasted inside each copy. The society, in strict adherence to its conviction of the duty of circulating the Scriptures alone was compelled to suppress the excellent address which had been prepared. The zeal with which the Nuremberg society entered upon its labours was of the most praiseworthy character; but it unfortunately pledged itself to supply 1000 copies of the Catholic Testament, and although in this instance the copies required were not simply translations from the Vulgate, but a more Protestant edition, yet the London Society again felt the necessity of abiding by the rule which permitted them to circulate only the authorized version. The prudence, good sense, and moderation of the committee of the Bible Society, exercised at this period, when it might have been anticipated that it would have been anxious to awaken the enthusiasm rather than repress the zeal of its supporters, have throughout its whole career formed the most remarkable characteristics of its proceedings.

Yet notwithstanding the general care and prudence of the committee, a deviation from the strict letter of the fundamental rule, which permits only the circulation of the authorized version, raised a controversy which at one time appeared to threaten the stability of the society. About the year 1821 it began to be intimated publicly, that the committee had been in the practice of permitting the apocryphal books to be intermingled in such copies of the Scriptures as were furnished to foreign societies. The staunch friends of the authorized version *exclusively* took up the matter very warmly, especially in Scotland; the controversy was carried on with much heat and acrimony; and (a natural consequence in all such controversies) the original accusation was not allowed to stand alone. Complaints were made of mal-practices in the expenditure of the society's funds; the correctness of many of the translations of the Scriptures made under the direction of the committee was impugned; and other matters were laid to the charge of the managers of the society, all of which combined led to a secession of many auxiliary societies, and weakened for a time the authority and influence of the parent society. The committee, in 1826, brought forward the following resolutions:—'1. That the fundamental law of the society, which limits its operations to the circulation of the Holy Scriptures, be fully and distinctly recognised as excluding the circulation of the Apocrypha. 2. That in conformity to the preceding resolution, no pecuniary aid can be granted to any society circulating the Apocrypha; nor, except for the purpose of being applied in conformity to the said resolution, to any individual whatever. 3. That in all cases in which grants, whether gratuitous or otherwise, of the Holy Scriptures, either in whole or in part, shall be made to any society, the books be issued bound, and on the express condition that they shall be distributed without alteration or addition.' Confidence has been gradually restored since these resolutions were acted upon; and the society is now (1835) in a higher state of activity and prosperity than it has ever enjoyed since its foundation.

It would have been utterly impossible for the Bible Society to extend its operations into every corner of the globe unless its resources had been increased by the various branches into which it ramified. These branches have communicated life and energy to the parent stem from the most remote and distant quarters. The growth of societies whose operations were auxiliary to those of the original institution does not appear to have been very rapid. In March, 1805, the first Bible association was formed at Glasgow; in July, an association was formed in London; and in April, 1806, one was formed at Birmingham. These associations had not a separate and distinct existence, and possessed no independent forms of government: they were simply unions of a few individuals whose contributions were devoted to the parent society. In proportion as the system of which they formed a part gathered power and influence, they necessarily assumed a more important character. As auxiliary societies, although still in connexion with their prototype, their functions and exertions became more individual and local in their nature.*

The first auxiliary Bible society was established on the 28th of March, 1809, at Reading. It adopted the regulations of the parent society. On the 30th of the same month, auxiliary societies were established at Nottingham and Newcastle-upon-Tyne. The Edinburgh Society was established July 31; and similar institutions were formed in East Lothian, Leeds, and Exeter, on the 4th of October, 25th of October, and 8th of December, respectively. The first auxiliary institution, established in the year 1810, was at Manchester. An auxiliary Bible society was formed at Kendal on the 5th of January; one at Bristol on the 1st of February; one at Sheffield on the 5th; one at Leicester on the 19th; and the Hull Auxiliary Society was established April 4. Eleven of these institutions had been established previous to the sixth anniversary of the parent society. The public nature of the proceedings connected with the establishment of these societies occasioned the claims and merits of the institution to be much more generally known and acknowledged; and the formal recognition of its value and importance, made by men of high character and influence residing in those vicinities where local societies arose, added to the authority and consequence with which the Bible Society began to be invested, and, with other circumstances, tended greatly to enlarge its resources and increase the magnitude of its operations. The formation of juvenile and female Bible societies contributed to multiply the efforts of the Society for the circulation of the Scriptures. By means of those subdivisions, which were subordinate to their own local institution, a wider sphere of action and personal influence was created, the benefit of which extended throughout the whole system. The scholars of Holborn Sunday-school, who contributed 1*l.* 17*s.* at the eighth anniversary of the parent society in 1812, offered the first example of the young appearing as contributors to the society. The York Juvenile Bible Society, the first institution of the kind, was formed during this year, which was further distinguished by the establishment of the first Ladies' Auxiliary Society. It is right, however, to mention, that at New York, U. S., in 1809, there had been formed the Young Men's Bible Society; and at Sheffield, in 1805, when the existence of the British and Foreign Bible Society was unknown to the parties, a female association existed, whose object was the circulation of the Scriptures.

The projectors of the Bible Society not having foreseen the origin and progress of the auxiliary institutions, had made no provisions for their uniform regulation; but their number had become so considerable in 1812 that the subject was forced upon them, and in the spring of that year an address was prepared, entitled 'Hints on the Constitution and Objects of Auxiliary Societies,' the object of which was to effect the consolidation of the auxiliary societies on a just and uniform basis. In 1812 the objects and interests of the Bible Society were ably promoted by the circulation of the following tracts:—1. 'On the Advantages of Distributing the Holy Scriptures among the Lower Orders of Society, chiefly by their own agency,' by Mr. Dealtry. 2. 'An Appeal to Mechanics, Labourers, and others, respecting Bible Associations,' by Mr. Montgomery of Sheffield. 3. 'On the Influence of Bible Societies on the Temporal Interests of the Poor,' by Mr. (now Dr.) Chalmers.

The following is a statement of the annual expenditure of the Bible Society, from the commencement of the institution up to the 31st of March, 1835:—

	£.	s.	d.
During the first year	619	10	2
" second	1.637	17	5
" third	5,053	18	3
" fourth	12,206	10	3
" fifth	14,565	10	7
" sixth year	18,513	17	1
" seventh	28,309	13	7
" eighth	32,419	19	7
" ninth	69,496	13	8
" tenth	84,652	1	5
" eleventh	81,021	12	5
" twelfth	103,680	18	8
" thirteenth	89,230	9	9
" fourteenth	71,099	1	7
" fifteenth	92,237	1	4
" sixteenth	123,547	12	3
" seventeenth	79,560	13	6
" eighteenth	90,445	6	4
" nineteenth	77,076	0	10
" twentieth	89,493	17	8
" twenty-first	94,044	3	5
" twenty-second	96,014	13	7
" twenty-third	69,962	12	3
" twenty-fourth	86,242	9	8
" twenty-fifth	104,132	6	11
" twenty-sixth	81,610	13	6
" twenty-seventh	83,002	10	9
" twenty-eighth	98,409	10	9
" twenty-ninth	88,676	1	10
" thirtieth	70,404	16	7
" thirty-first	84,249	13	4
Total	£2,121,640	18	11

In the Thirty-first Annual Report (for 1835) it is stated that the funds of the society for the previous year amounted to 107,926*l.* 1*s.* 9*d.*, which is the largest sum ever received in any one year; the prospective engagements of the society were, however, never so heavy, amounting to 69,310*l.* 3*s.* 4*d.*

These immense resources were derived, in a great measure, from the exertions of the affiliated societies, which amounted, in March, 1835, to not fewer than 3258, viz.: in Great Britain, 284 auxiliaries, 388 branches, and 1824 associations. Of these associations, above 1190 are conducted by ladies in Ireland, in connexion with the Hibernian Bible Society: 71 auxiliaries, 331 branches, and 203 associations. In the British colonies and dependencies, 39 auxiliaries, 48 branches, and 70 associations.

Among its foreign relations the British and Foreign Bible Society enumerates many auxiliaries and branches. In Europe it has established itself at Malta as a central point of great and increasing importance. In Asia its cause is aided and represented by the Calcutta, Madras, Bombay, and Colombo auxiliary societies, with their various branches. Similar institutions are established in Australia, at Sydney, New South Wales; Hobart's Town, Launceston, and Cornwall, Van Dieman's Land: in Africa, at Sierra Leone, the Cape of Good Hope, Salem, and the Mauritius: in the British Colonies of North America, *i. e.*, in Nova Scotia, at Halifax, at Liverpool in Queen's County, at Pictou, Yarmouth, and Argyle; in New Brunswick, at St. John's, St. Andrew's in Charlotte County, Fredericton, and Miramichi; and in the Canadas, at Quebec, Montreal, Toronto, and Kingston; and likewise in the West Indies, at Jamaica, Antigua, Barbadoes, St. Christopher's, Dominique, Tobago, Montserrat, Bahama, Brockville, Nevis, St. Lucia; and in the Bermudas, at Berbice, and British Guiana, Grenada.

The number of auxiliary societies in connexion with the American National Bible Society is 863. The Philadelphia Bible Society, the oldest institution in the United States, has also its various branches.

Since the formation of the British and Foreign Bible Society, up to 1835, it has issued 8,539,356 copies of the Scriptures, viz., 3,266,445 Bibles, and 5,272,901 Testaments.

The American societies have issued 1,730,504 Bibles and Testaments.

The total number issued by the respective societies on the Continent of Europe, in Asia, and America is 5,845,646, making, with the number issued by the British and Foreign Bible Society, a total of 14,385,002 copies of the Scriptures put into circulation since the formation of the society. On the Continent of Europe it has printed, or extensively aided in printing, versions of the Scriptures into the French, Basque, Breton, Flemish, Spanish, Jewish-Spanish, Hebrew, Italian, Romanese, German, Bohemian, Servian, Wendish, Hungarian, Polish, Lithuanian, Danish, Swedish, Finnish, Lapponese, Icelandic, Samogitian, Esthonian, Lettish, Sclavonian, Wallachian, Albanian, Russian, Turkish, Turco-Greek, Tartar-Turkish, Modern Greek, Albanian, Calmuc, Buriat Mongolian, Manuchod, Modern Armenian, Carshun, Syriac, Georgian, Turco-Armenian, and Armenian languages. In Asia it has promoted the translation and publication of the Holy Scriptures in Persian, Arabic, Singalese, Pali, Hindoostanee, Bengalee, Sanscrit, Teloogoo, Tamul, Malay, Mahratta, Malayalim, Orissa, Seik, Birman, Carnarese, and several other dialects, together with two versions of the whole Scriptures in the Chinese, a language understood by perhaps one-fifth of the population of the globe. At Madagascar the New Testament and Psalter has been printed in Malagasse. The inhabitants of the Society and Georgian Islands have also received versions in the Tahitian languages. In Africa the antient church of Abyssinia has been supplied with an edition of the Ethiopic Psalter and the Gospels; and the Pentateuch, Psalter, and New Testament have been printed in the vulgar dialect of Abyssinia. Egypt has been furnished with the Psalter and the four Gospels in Coptic and Arabic. The inhabitants of a portion of Western Africa have received a part of the Scriptures in the Bullom dialect; the aborigines of Northern Africa, a translation of the Gospels and the book of Genesis in the Berber; some of the tribes of Southern Africa the Gospels in the Namacqua dialect, besides versions in the Caffre and Sichuana. At Labrador the New Testament and Psalms have been translated into the Esquimaux language, and the New Testament and the book of Genesis into the language of Greenland.

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* Auxiliary societies are allowed to purchase Bibles and Testaments at prime cost; their members have the same privileges also, at the local depositories, as the members of the parent society enjoy in London.

The principal translations of the Scriptures now carrying on under the auspices, and with the aid of this society, are—in the languages of Europe, the Breton and Catalonian; of Asia, the Persian, the Curdish, the Ararat-Armenian, and various dialects of the peninsula of Hindostan; of the South Sea Islands, the Tahitian, Raratogna, Tonga, and the language of New Zealand; of America, the Chippeway, the Peruvian, the Aimara, the Mexican, the Misteca, the Tarasco, and Esquimaux; and of Africa, the Namacqua, the Caffre, and the Sichuana.

Translations have been commenced in the following languages or dialects, but of the completion or publication of these there is no immediate prospect :—

Arawack (South American Indian); Ossitinian, and Wotiak, by the Russian Bible Society; Bugis, Macassar, Maldivian, and Rakheng, by the late Dr. Leyden, aided by the Calcutta Bible Society.

By the Serampore missionaries.—Bhojpooree, Budrinathee, Bulochee, Bundelkhundee, Huriyana, Joypore, Munipoora Koonkee, Tripoora Koonkee, Kousoulee, Kucharee, Kutch, Mithilee, Oodoypore, Sindhoo, and Southern Sindhoo.

The Russian Bible Society had undertaken the printing of the Scriptures in twenty-seven different languages previous to its suspension; and before that event took place it had been the means of diffusing, for the first time, 861,105 copies of entire Bibles and Testaments, or separate books thereof, amongst the natives of that empire. The Protestant Bible Society of St. Petersburg is pursuing its course with energy, though on a more contracted scale than its predecessor did. During the years 1833-34 it distributed 16,908 copies of the Scriptures.

The Calcutta Auxiliary Society, which has branches at Malacca, Prince of Wales' Island, Benares, and Cawnpore, has put forth the following versions and editions: Cingalese New Testament, Armenian Bible, Malay (Roman character) Bible and Genesis, Malay (Arabic character) Bible and Genesis, Hindoostanee (Nagree character) New Testament and Gospels, Bengalee Gospels and New Testament, Tamul Genesis and New Testament, Hindoostanee Gospels and Acts, New Testament, Pentateuch, and Old Testament; Teloogoo Testament, Hindoostanee and English Gospel of St. Matthew, Bengalee and English Gospels of St. Matthew and St. John, Acts and Epistles in Bengalee.

The Colombo Auxiliary Society, in the island of Ceylon, has printed the Cingalese Testament, Gospels of St. Matthew and St. Mark, Genesis, Psalms, Proverbs, and Bible; and Indo-Portuguese Psalms.

The bible societies are still prosecuting, with unrelaxed activity, their object of circulating copies of the sacred writings among men 'of every nation under heaven.'

The Society for Promoting Christian Knowledge distributes about 85,000 Bibles, and 75,000 Testaments annually; and it appears that at a special general meeting of the society, held February 10, 1834, a separate committee was appointed for the purpose of superintending the publication, and more effectively promoting the circulation of the Scriptures in foreign languages. Besides this, there are other societies through whose means the Scriptures are distributed, but not to so great an extent as the last-mentioned society, which is by many considered as possessing equal claims on public support as the Bible Society, although its operations are not exclusively directed to the circulation of the Scriptures; and it was in consequence of its alleged indifference to this object that the British and Foreign Bible Society was called into existence.

(Owen's *History of the Bible Society; Reports of the British and Foreign Bible Society.*)

BIBLIO'GRAPHY. The term Βιβλιογραφια was used by the Greeks to signify only the writing or transcription of books; and a bibliographer (Βιβλιογράφος) with them was a writer of books, in the sense of a copyist. The French term *Bibliographie* was long used to signify only an acquaintance with antient writings and with the art of deciphering them. It is so explained, for instance, in the edition of Richelet's *Dictionary*, published in 1732. The term *bibliographe* (bibliographer) is not in Richelet. It is given, however, in the *Encyclopédie* (Paris, 1751); but both it and *bibliographie* are still explained only in the sense that has been just noticed. In the *Dictionnaire de Trevoux*, published in 1752, we find it stated that a bibliographer is a decipherer of antient manuscripts, with the addition, that now-a-days the name is given specially to those who are skilled in the knowledge of books and their editions, and who make catalogues of them. Accordingly, in 1763, De Bure published the first volume of his well-known work on the knowledge of rare and singular books, under the title of *Bibliographie Instructive.* In his preface he employs the term as if the acceptation which it bears in his title-page had become familiar. In subsequent editions of the *Encyclopédie* (for instance in the fifth volume of the Lausanne edition, printed in 1778) a new article appears on the term *bibliographie*, which consists merely of a notice of this book of De Bure's. The sense in which the word is used by De Bure is now, we believe, the only sense in which it is used by French writers, some of whom, however, have of late employed the term *bibliologie* as its substitute. We doubt whether the English term *bibliography*, which we have borrowed from the French, has ever had any other than this signification since its first appearance in the language; although in Johnson's Dictionary, published in 1755, a bibliographer is explained as meaning both 'A man skilled in literary history, and in the knowledge of books,' and 'a transcriber.' No authority is quoted for either use of the word. In the later editions of Johnson, the term *bibliography* is inserted, and stated to mean 'The science of a bibliographer:' and a bibliographer is defined to be merely 'A man skilled in the knowledge of books.'

Bibliography may be defined to be the science of books, regarded simply as such. Thus limited, it excludes all consideration either of the literary merits of a work, or of the importance or interest of the subjects which the author treats of, or of the truth or value of his statements, opinions, or speculations. It comprehends the facts—of the subject and class of the work, of its authorship and subsequent history, of the number of editions it has passed through, of the printer and publisher of each, and of its date in respect both of time and place, of the form or size (that is, the manner in which the sheets are folded, and also the size of the sheet, for the old folios are often small, such as some old editions of Bale), the quality of the paper, the number of pages, the typographical character, the number and description of the plates, the comparative completeness, correctness, and rarity, and all other external peculiarities or distinctions, of each edition. It is common to include many other things as parts of bibliography, such as a knowledge of the history, and even of the processes, of the arts of printing and book-binding, as well as of the written characters of different ages. But to give such an extension to the science is to leave it without any limits whatever. If the knowledge of the art of deciphering written characters, for instance, is to be held to be a part of bibliography, then the bibliographer must be a universal linguist, in so far at least as respects the alphabets of all languages. If bibliography, again, is to include a knowledge of the arts of printing and bookbinding, why not also of those of the making of paper, parchment, papyrus, and all other substances that have ever been used for printing or writing upon, and of the composition and manufacture of inks and all other pigments? In this way bibliography would include no inconsiderable portion both of chemistry and botany. On the same principle the bibliographer might be required to have a knowledge of everything appertaining to the arts of cutting letters in wood and stone.

Although bibliography, in the sense to which it is now confined, is a very modern term, the science of the knowledge of books in regard to their authors, subjects, editions, and history, must have been cultivated from a comparatively early period in the history of literature. Indeed an acquaintance with such matters is to a great degree implied in a general knowledge of literature, such as must have been possessed by many persons in every age of civilization and learning. But the study must have been more systematically pursued, even in the antient world, by those whose business it was to arrange and take charge of large libraries, of which we know that many, both public and private, existed in Greece, in Egypt, at least under the Ptolemies, in Italy, and in other countries. The principal booksellers of those days must also have been more or less conversant with what we now call the science of bibliography. We believe, however, that no professed treatise upon the subject, or upon any part of it, has either come down to us from antiquity, or is anywhere mentioned among the now lost productions either of Greek or Roman learning.

It is only since the invention of printing, and the consequent extraordinary multiplication of books, that bibliography has, properly speaking, assumed the form of a science, and been developed in its principles and details in systematic works.

In Germany, in Italy, in France, and also in our own country, works in all the departments of bibliography have, within the last three centuries, been produced in such numbers that the mere enumeration of their titles would make a bulky volume. We can here notice only a very few of the most important, and that chiefly for the purpose of illustrating the different branches into which the subject may be divided.

The most numerous class of bibliographical works are lists or catalogues of books; but these are of various descriptions. Even booksellers' catalogues are to be included under this head; such catalogues are collected and prized by bibliographers, as in many cases affording evidence both of the prices of books and of the existence of particular editions and copies. Some of them, from the superior rarity of the articles which they include, or from bibliographical notices with which they are interspersed, have a much higher value. The *Bibliotheca Anglo-Poetica*, for instance, published in 1815 by Messrs. Longman and Co., is perhaps the fullest list that exists of the earlier and rarer productions of English poetry, of many of which it also contains interesting bibliographical descriptions. Under the same head may be mentioned such publications as Reed's 'Bibliotheca Nova Legum Angliæ' (1809), and other catalogues of law-booksellers, in which legal works are classified according to their subjects. Among the most valuable sale catalogues, however, are some of those of the libraries of individual collectors; such, for example, as that of the late Mr. Roscoe (prepared by himself) and published in 1816, and more recently those of the libraries of Dr. Parr (1827) and of Mr. Heber (1834). Among the older English catalogues of the libraries of private individuals, one of the scarcest is that of the large library of Mr. Thomas Rawlinson, which was dispersed by auction in 1722. This catalogue was published in parts, and is rarely to be found complete. Rawlinson is the person satirized under the name of Tom Folio, in the 158th number of the 'Tatler.' Some of the most celebrated of the foreign catalogues of this description are those of the libraries of M. Cisternay du Fay (8vo. 1725), of the Comte de Hoym (8vo. 1728), of the Abbé Charles d'Orléans de Rothelin (8vo. 1746), and of M. Claude Gros de Boze (8vo. 1753), all prepared by the Parisian bookseller, Gabriel Martin. There is another catalogue of the library of M. de Boze, printed under his own care at the royal press in small folio in 1745, which is of extreme rarity, only fifty copies, it is said, having been thrown off. De Bure states that a single copy has been sold for nearly 240 livres. In all these catalogues of Martin's the books are arranged in classes according to a scheme of his own contrivance, and an alphabetical catalogue of the names of the authors is given at the end. Perhaps, however, the most comprehensive and valuable catalogue thus digested that has ever been published is that entitled the 'Bibliotheca Bunaviana,' 7 vols. 4to. Leipzig, 1748-1756, being a catalogue of the library of the Count de Bunau, drawn up by his librarian, Jo. Mich. Franck. The divisions and subdivisions in this catalogue are much more numerous than those in Martin's system. The work has the highest character for accuracy, so far as it goes; but unfortunately it has never been completed.

Some *Catalogues Raisonnés* (as catalogues in which the books are thus disposed into classes according to their subjects are called by the French) have also been printed of public libraries. The greatest work of this description is probably that of the French 'Bibliotheque Royal,' begun in 1739, and finished in ten volumes folio in 1753. This catalogue consists of two parts, one of the printed books, and another of the manuscripts. The former was originally superintended by the Abbés Sallier and Boudot, the other by Anicet Mellot. The most complete catalogue of this description in existence is understood to be that of the library of the university of Gottingen, but it has not been printed. (See an account of this Catalogue in the *Quarterly Journal of Education*, No. IV.) The best specimen of a *Catalogue Raisonné* that we know of any of the more considerable public collections of this country, is that of the library of the writers to the Signet in Edinburgh, published in one volume quarto in 1805. The catalogues of the libraries of some mechanics' institutes and other private associations have more recently been published upon a similar plan. It is to be observed that a *Catalogue Raisonné* implies something more than a distribution of the books into so many distinct alphabets, severally headed Theology, History, Voyages and Travels, Novels and Romances, Poetry, Medicine, Law, &c., as we find done even in many catalogues of circulating libraries, and booksellers' and auctioneers' sale catalogues. In a *Catalogue Raisonné*, properly so called, the alphabetical arrangement of titles is entirely dispensed with, its place being supplied by an index at the end; and every work is set down in the order pointed out by its subject, the ground over which the author's researches or speculations extend being at the same time indicated as distinctly and fully as possible, not only by the transcription of the title-page, but, when necessary, by an abstract of the contents. This is especially done in the case of publications that consist of collections of treatises.

There are printed catalogues of most of the public collections of books in this country; but, with the exceptions just mentioned, they are all, we believe, merely alphabets of titles, and even as such few of them have been very carefully drawn up. One of the most inaccurate and deficient is that of the printed books in the general library of the British Museum, which was published in 1813-1819, in seven octavo volumes. That of the Royal Library, lately transferred to the same depository (five volumes folio, besides a catalogue of maps, prints, &c., in one volume, 1820-1829), has been prepared with much greater care. There are also excellent printed catalogues of the Harleian, Cottonian, Lansdowne, Sloan, and Birch Manuscripts, all preserved in this extensive national collection. The only catalogues of the Burney, the Cole, the Mitchell, the Egerton, and some other collections also there, are still unprinted. Of the Bodleian Library no catalogue has been printed since that which appeared in two volumes folio in 1738; nor any of the library of Sion College since that published in one volume folio in 1724; although the increase since these dates of both collections must have been very great. We are not aware that there is a printed catalogue of any one of the Cambridge libraries, except one of that of St. Catherine's Hall, printed in 1771, and another of the Parker Manuscripts in the library of Corpus Christi College, printed in 1777. In Scotland a catalogue of the library of the University of Glasgow was published in one volume folio in 1791. It was drawn up under the superintendence of Mr. Arthur, Professor of Moral Philosophy, and is one of the most correct catalogues ever printed. The example of the University of Glasgow has recently been imitated by the

University of St. Andrews': the catalogue of the St. Andrews' Library appeared, also in one volume folio, in 1826. No catalogue, we believe, has ever been printed of the library of the University of Edinburgh, or of either that of King's College, or that of Marischal College, Aberdeen. Of the library belonging to the Faculty of Advocates in Edinburgh, by far the largest and most valuable collection in Scotland, a catalogue, drawn up by the learned Thomas Ruddiman, who was librarian for some years, was published in 1742 in folio; and to this several supplementary volumes have since been added.

A higher description of catalogues are those not of particular collections, but of books generally, or of certain classes of books, arranged in reference either to their subjects, their dates, their authors, or their titles.

One of the earliest attempts made to present in this way what we may call a complete survey of printed literature was that of Conrad Gesner, in his 'Bibliotheca Universalis,' published in one volume folio in 1565. In this catalogue the works are arranged according to the names of the authors; but although designated an universal library, it is confined to books in the Greek, Latin, and Hebrew languages, which, although comprehending by far the greater part, did not even then include the whole of literature. Gesner, however, remains to the present day without any successor in his vast enterprise. No subsequent work has appeared professing to survey in the same manner the whole field of existing literature. The nearest approach that has been made to any thing of the kind is in the 'Bibliotheca Britannica' of the late Dr. Robert Watt of Glasgow, four vols. 4to. Edin. 1824. This is a most elaborate, meritorious, and useful work; but, as its title indicates, it is to be considered as aiming at completeness only in regard to English works; those which it notices in other languages, although also amounting to a very large number, being professedly only a selection. Owing also to the residence of the author in a remote provincial town, where he was precluded from access to many of the most valuable sources of information, his work is neither so full nor so correct as with better opportunities it might have been made; and some additional inaccuracies have crept into it from his not having lived to see it through the press. With all these drawbacks, however, it is still an extraordinary monument of industry, and a help to the student of very great value. It consists of two parts, in the first of which the books are arranged according to the names of the authors, and in the second according to their subjects.

In a few cases attempts have been made to present catalogues of all the works written in some single language, or by the authors of some single country. As examples of catalogues of this description may be mentioned the 'Illustrium Majoris Britanniæ Scriptorum Summarium' of John Bale, first published in 1458 (for an account of which see Bale); the 'De Academiis et Illustribus Angliæ Scriptoribus' of John Pits, the first volume of which (the only one ever published) appeared at Paris in 4to. in 1619; the 'Bibliotheca Britannico-Hibernica' of Bishop Tanner, folio, 1748; the 'Bibliotheca Belgica' of John Francis Foppens, 2 vols. 4to. 1739; and the 'Bibliotheca Hispana, Nova et Vetus,' 4 vols. folio, 1672 and 1696, of Nicholas Antonio. Under this head also may be mentioned the several admirable works of John Albert Fabricius, entitled the 'Bibliotheca Latina,' 2 vols. 4to.; the 'Bibliotheca Mediæ et Infimæ Latinitatis,' 6 vols. 4to.; and the 'Bibliotheca Græca,' the second edition of which, by Harles, published at Hamburgh in 1790-1809, is in 12 volumes, 4to. To these may be added, as works of the same class, but of very inferior character, Dr. Harwood's 'View of the Principal Editions of the Greek and Roman Classics,' 8vo. 1775, and Dr. Dibdin's 'Introduction to a Knowledge of rare and valuable editions of the Greek and Roman Classics,' which was first published in 1802, and has been since several times reprinted.

A much more numerous class of catalogues are those of all the books written either in some one language, or in all languages, upon a particular department of knowledge. Thus we have the 'Bibliotheca Theologica,' the 'Bibliotheca Juridica,' the 'Bibliotheca Philosophica,' and the 'Bibliotheca Medica,' of Martin Lipenius, or the whole collected in six volumes, folio, under the title of 'Bibliotheca Realis.' To the 'Bibliotheca Juridica' valuable supplements were added by Scholt in 1775 and by Seckenberg in 1789, which have increased the work to four volumes folio. One of the very best of this class of works is the great French work by the Père Le Long, entitled 'Bibliothèque Historique de la France,' an account of works both printed and manuscript on French history, the last edition of which, published at Paris in 1768-78, is in five volumes folio. The 'Bibliotheca Historica' of Meusel, published at Leipzig in 1782-1804, in 22 volumes, 8vo., is much more extensive in its design, comprehending both historical and geographical works relating to all countries and in all languages. Other works of this class are the 'Bibliotheca Magna Rabbinica' of Julius Bartoloccius, 4 vols. fol. Rome, 1675, with the supplement of C. J. Imbonatus, fol. Rome, 1694; the 'Scriptorum Ecclesiasticorum Historia Literaria' of Cave, 2 vols. fol. Oxford, 1740; Luke Wadding's 'Scriptores Ordinis Minorum,' fol. Rome, 1650 (a highly-esteemed and scarce work); Ribadeneira's 'Bibliotheca Scriptorum Societatis Jesu,' fol. Rome, 1676; Le Long's 'Bibliotheca Sacra' (an account of the editions of the Scriptures and of the versions of them in various languages), 2 vols. fol. Par., 1723; Humphrey Wanley's Catalogue of Saxon Writers and their Works, forming the second volume of Hickes's 'Thesaurus Linguarum Septentrionalium;' the edition of the work of Van der Linden, 'De Scriptis Medicis,' published by G. A. Mercklin in 4to. at Nuremberg in 1686 under the title of 'Lindenius Renovatus;' the 'Bibliotheca Scriptorum Veterum et Recentiorum' of J. J. Manget, 4 vols. fol. Geneva, 1731; the excellent catalogue of the writers 'De Morbis Venereis' in the second volume of Astruc's treatise on that subject [see Astruc]; the 'Bibliotheca Mathematica' of Murhard, 5 vols. 8vo. Leipz. 1797-1805; the 'Bibliographie Astronomique' of La Land, 4to. Paris, 1803; the 'Bibliothèque des Voyages' of Boucher de la Richarderie, 6 vols. 8vo. Paris, 1808; Bridgman's 'Legal Bibliography,' 8vo. 1807; the 'English Topographer,' by Dr. Richard Rawlinson, 8vo. 1720; and the 'Bibliographical Account of the Principal Works relating to English Topography,' by Mr. Upcott, 3 vols. 8vo. 1818, one of the most accurate of this description of publications.

Another subdivision of this class of bibliographical works consists of catalogues of all such books as have been published up to a certain date posterior to the invention of printing, or of those that have appeared in some particular age, or that have issued from some particular press. Among the most remarkable of these are Maittaire's 'Annales Typographicæ ab artis inventæ origine,' 5 vols. 4to., of which the first was published in 1719 at the Hague, and the last at London in 1741 (to this should be added the supplement by Denis, 2 vols. 4to. Vienna, 1789); Panzer's 'Annales Typographicæ ab artis inventæ origine,' 11 vols. 4to. Nuremberg, 1793-1803, in which work, founded upon the preceding, the list of books is brought down to the year 1536; Ames's 'Typographical Antiquities, being an Historical Account of Printing in England from 1471 to 1600' [see Ames]; Maittaire's 'Historia Stephanorum,' 2 vols. 8vo. London, 1709; Maittaire's 'Historia Typographorum Aliquot Parisiensium,' 2 vols. 8vo. London, 1717; and Renouard's 'Annales de l'Imprimerie des Alde,' 2 vols. 8vo. Paris, 1803.

To these works are to be added many others, which proceed upon a principle of selection. Such are the following: A. Beyer's 'Memoriæ Historico-criticæ Librorum Rariorum,' 8vo. Dresd. et Leipz. 1734; J. Vogt's 'Catalogus Historico-Criticus Librorum Rariorum,' 8vo. Hamb. 1753, and again, improved, in 1793; S. Engel's 'Bibliotheca Selectissima, seu Catalogus Librorum in omni genere scientiarum rarissimorum, cum notis bibliographicis, 8vo. Bern. 1743; D. Clement's 'Bibliothèque Curieuse, ou Catalogue Raisonné des Livres rares et difficiles à trouver,' 9 vols. 4to. Gottingen, 1750-60. This extensive work, in which the titles of the books are arranged alphabetically, comes down only to the letter H, having been stopped at that point by the death of the author. De Bure's 'Bibliographie Instructive, ou Traité de la Connoissance des Livres Rares et Singuliers, contenant un Catalogue Raisonné de la plus grande partie de ces livres précieux qui ont paru successivement dans la République des Lettres, depuis l'Invention de l'Imprimerie,' 7 vols. 8vo. Paris, 1763-68. In 1769 the author published a catalogue of the library of Louis Jean Gaignat, in 2 vols. 8vo., under the title of a supplement to his 'Bibliographie;' and in 1782 a tenth volume was added to the work, being an index to the anonymous books mentioned in it, which were not included in the original index. Of the original seven volumes, the first is occupied with theology, the second with jurisprudence and the sciences and arts, the third and fourth with the belles lettres, the fifth and sixth with history, and the last with a general index to the whole, in which the books are classed according to the names of the authors. Probably no publication has contributed so much to make the study of bibliography popular as this elegant and judicious performance. Even at the present day it may be recommended as the most attractive manual of bibliographical knowledge that has yet been produced. Notwithstanding considerable deficiencies, and also some inaccuracies, the student will collect from it, more readily than from any other source, a knowledge of the titles and best editions of most, not only of the rarest but also of the most important works that had issued from the press up to the time of its appearance. It is astonishing what an extent of ground the author contrives to go over in his limited space. The articles which he describes amount to above 6000 in number; and, in regard to many of them, very ample details are given. The account of the famous American collections of De Bry, for instance, extends to 120 pages. Osmont's 'Dictionnaire Typographique, Historique, et Critique, des Livres rares, estimés, et recherchés en tous genres,' 2 vols. 8vo. Paris, 1768; J. J. Bawer's 'Bibliotheca Librorum Rariorum Universalis,' 7 vols. 8vo., 1770-91; F. X. Laire's 'Index Librorum ab Inventa Typographia ad annum 1500, cum notis,' 2 vols. 8vo. 1791; Dr. Adam Clarke's 'Bibliographical Dictionary of the most curious and useful books, in Latin, Greek, Hebrew, Arabic, and other Eastern languages,' 6 vols. 12mo. 1803, with a Supplement, containing an account of English translations of the classics and theological writers, published under the title of the 'Bibliographical Miscellany,' in 2 vols. 12mo., in 1806; S. Santander's 'Dictionnaire Bibliographique choisi du Quinzième Siècle,' 3 vols. 8vo. 1805; Brunet's 'Manuel du Libraire, et de l'Amateur des Livres,' 2nd edit. 4 vols. 8vo. 1814, a very useful work; Dibdin's 'Library Companion,' 2 vols. 8vo. London, 1824; Goodhugh's 'English Gentleman's Library Manual,' 8vo. 1827; Lowndes's 'Bibliographer's Manual of English Literature,' 4 vols. 8vo. London, 1834; Ventouillac's 'French Librarian,' 8vo. 1829; the 'Bibliotheca Historica Selecta' of B. B. G. Struvius, 8vo. 1705, and greatly augmented by C. G. Buder, 2 vols. 8vo. 1740; the catalogue of the principal historical writers appended to the Abbé Lenglet du Fresnoy's 'Méthode pour étudier l'Histoire,' 6 vols. 4to. Paris, 1729-40, or that forming the second volume of the English translation of part of the same work, by Dr. Richard Rawlinson, 2 vols. 8vo. London, 1730; Archbishop Nicolson's 'Historical Libraries of England, Scotland, and Ireland,' 4to. 1776; the 'Lettres sur la Profession d'Avocat, et Bibliothéque choisi des Livres de Droit,' of M. Camus; the catalogue of works relating to natural philosophy and the mechanical arts, annexed to the late Dr. Young's 'Lectures on Natural Philosophy;' the late Dr. Mason Good's 'Study of Medicine,' 5 vols. 8vo. 1829; A. Baillet's 'Jugemens des Savans sur les Principaux Ouvrages des Auteurs,' augmentés par M. de la Monnoye, 8 vols. 4to. Amsterdam, 1724; Sir Thomas Pope Blount's 'Censura Celebriorum Auctorum,' fol. London, 1690; the 'Censura Literaria,' of Sir Egerton Brydges, 10 vols. 8vo. 1805-09; Hartshorne's 'Book Rarities in the University of Cambridge,' 8vo. London, 1829. Under this head also may be noticed the learned and admirable work of D. G. Morhof, entitled 'Polyhistor Literarius, Philosophicus, et Practicus,' first published in 1688, but the best edition of which is that of J. A. Fabricius, in 2 vols. 4to. 1747; and the very erudite and elaborate 'Onomasticon Literarium' of C. G. Sax, or Saxius, published at Utrecht, in 7 vols. 8vo. from 1759 to 1790, with a supplementary volume which appeared in 1803.

There is one class of books, which, from a peculiarity by which they are distinguished, has frequently been treated by itself in bibliographical works; we mean the class of books which have not the names of their authors on the title-page. In 1690, Adrien Baillet published, not a very profound, but still a curious treatise upon books of this description, under the title of 'Auteurs Déguisés sous des noms étrangers, empruntés, supposés, feints à plaisir, abrégés, chiffrés, renversés, retournés ou changés d'une langage en une autre;' which was afterwards incorporated in the fifth volume of La Monnoye's edition of the 'Jugemens des Savans,' along with many annotations and corrections. At the end of this dissertation, which is divided into four parts, is given a list of false names assumed by authors, with their interpretation, as far as known, which extends to between sixty and seventy columns. A few years before the publication of Baillet's work, namely, in 1674, Vincent Placcius had printed a small tract in 4to. at Hamburg, entitled 'De Scriptis et Scriptoribus Anonymis atque Pseudonymis Syntagma.' In 1708 this work re-appeared under the superintendence of the indefatigable Jo. Alb. Fabricius, and of Mat. Dreyer, a lawyer of Hamburg, enlarged to 2 vols. fol. by the insertion of much new matter, and also by the addition of the following tracts upon the same subject, which had been previously printed:—'De Nominum Mutatione,' by F. Geisler, 1669, and again in 1671; 'Conjecturæ de Scriptis Adespotis, Pseudepigraphis, et Supposititiis,' by John Decker, 1678 and 1686; and 'Dissertatio Epistolica ad Placcium, qua Anonymorum et Pseudonymorum farrago exhibitur,' by Jo. Mayer, 1689. To the whole was now given the title of 'Vincentii Placcii Theatrum Anonymorum et Pseudonymorum.' To this should be added the Supplement published in 1 vol. folio, and also in 2 vols. 8vo. at Hamburg, in 1740, by Jo. Ch. Mylius, in which is comprised a reprint of the preceding Supplement, published at Jena in 1711, by Ch. Aug. Neuman, under the title of 'De Libris Anonymis et Pseudonymis Schediasma, complectens observationes generales, et Spicilegium ad Placcii Theatrum.' The original work, and the supplement of Mylius, together comprehend between nine and ten thousand articles.

But of all the works in this department of bibliography, by far the most perfect and valuable is the 'Dictionnaire des Anonymes et Pseudonymes' of the late M. Barbier, administrator of the private libraries, first of the Emperor Napoleon, and afterwards of Charles X. of France. The first two volumes of the first edition of this admirable work appeared in 1806, and were followed by two more in 1809. The publication of a second and greatly improved and enlarged edition was commenced by the author in 1822, and completed by him in 3 vols. in 1824, about a year before his death. A supplementary volume, which he left ready for the press, has since been published by his son. The Dictionary of Barbier is confined to works in the French and Latin languages, but of these it notices between twenty-three and twenty-four thousand.

For further information upon the different branches of bibliography the reader may refer to the Rev. T. H. Horne's 'Introduction to the Study of Bibliography,' 2 vols. 8vo. Lon. 1814; C. F. Achard's 'Cours de Bibliographie,' 3 vols. 8vo. Marseilles, 1807; and the various publications of M. G. Peignot: 'Manuel Bibliographique,' 1800; 'Dictionnaire de Bibliologie,' 2 vols. 1802; 'Repertoire Bibliographique Universel,' 1812; 'Dictionnaire Critique et Bibliographique des principaux Livres condamnés au feu,' 2 vols. 8vo. Paris, 1806; 'Repertoire des Bibliographies Speciales, Curieuses, et Instructives,' 8vo. Paris, 1810, &c. M. Peignot's scholarship, however, is not equal to his zeal and industry. [See the articles Library and Printing.]

BICESTER, BISETTER, BIRCESTER, or BURCHESTER, a neat market-town of Oxfordshire, 54 miles N.W. by W. from London, and 13 miles N.E. by N. from Oxford, on the road from Oxford to Buckingham, upon a small rivulet that enters the Charwell at Islip. Some think the name of this town is derived from the Bura, which rises in the neighbourhood; but others suppose, with Plot, that it comes from Bernwood Forest, upon the edge of which it was antiently seated. Bishop Kennet says that it was originally a walled town, though no traces of the wall now exist, and that it was built somewhere about A.D. 640 by Birinus, bishop of Caer Dor, or Dorchester, in Oxfordshire. The place was called *Caer Birin* from its founder, 'and this one thing is worth the observing,' remarks Kennet, 'that wheresoever the Britains built a walled town, they gave it the name, first or last, of the word *caer*, which is derived of the Hebrew *kir*, and signifieth, in the one and the other language, a wall; and wheresoever the English coming in found the word *caer* in the name of any town, they translated it by the word *chester*, or *cester*, which was the same to them as *caer* to the old Britains.' By such a process, according to Kennet, the name Caer Birin became Birincestre, and then by contraction Bircester, and ultimately Bicester, as at present. These, however, are not the only forms which have been given to the name; and a confirmation of its connexion with Birinus is derived from the fact that his name has undergone changes analogous to those in the initial syllables of the town's name. There certainly seems to have been here in the time of Birinus a frontier garrison of the West Saxons against the Mercians;

and it is likely that it might have assumed his name because it was built by his advice and assistance out of the ruins of Alchester and Chesterton, or because a church was built and endowed by him. Alchester, probably a contraction of *Ald* (old) *chester*, was a city of a square form, divided by four streets, and appears to have been one of the garrisoned places constructed by Plautius to secure the newly-acquired country after his early triumphs over the Britons. The name 'Alchester' is still retained for the site on which it stood, and some faint traces of it may be discovered about a mile and a half to the south-west of Bicester; for, although the soil has long been under cultivation, Roman coins and fragments of building have occasionally been discovered in excavating.

The parish of Bicester is divided into two districts or townships, called King's End and Market End. The old town of Birincester, which is believed to have been destroyed by the Danes, stood on the west part or King's End; the other portion was formerly called Bury End, but received its present name from the weekly market which was granted in the 19th of Henry VI. This replaced or superseded a weekly market and an annual fair, which had been granted at a previous period (1 Rich. II.) to the village of Bigenhall, which then occupied the site of the present King's End of the town. In the reign of Henry II. (1182), Gilbert Basset, baron of Hedingdon, founded at Bicester a religious house for a prior and eleven canons of the order of St. Augustine. It was dedicated to St. Eadburg; and was valued at the Dissolution at 147*l.* 2*s.* 10*d.*, according to Dugdale. The name of the saint to whom it was dedicated is still preserved in St. Edburg's Well in the vicinity. This well was reputed holy until the Reformation, after which it became choked up through long neglect; but in the dry summer of 1666, the head of the spring was opened and cleansed, when a sudden and great supply of water gushed forth. There was a neat and much-frequented walk leading to it from the priory and town. This was called, in a record of Edward I., 'Seynt Edburg, hes grene way,' and *Via Sanctæ Edburgæ*, and is now denominated St. Edburg's Balk. There were at least seven English saints of this name; this one was St. Edburg of Aylesbury.

The author of the *History of Allchester, near Burchester*, which was written in 1622, and forms an appendix to Bishop Kennet's book, speaks thus of Bicester as it was then:—

'It is at this day a very good market for all manner of cattle, and well supplied with all kinds of trades. . . . Yet in Bister I can observe nothing memorable but a fair church for the setting forth of God's glory, and the ruins of an old abbey, now the house of Sir Richard Blunt.' This 'fair church' is a neat and commodious building, erected about the year 1400 on the site of a former structure. It has a lofty square tower, contains several fine monuments and old sculptures, and has accommodation for 1200 persons. The living is a discharged vicarage in the diocese of Oxford, of the annual value of 231*l.* The town itself is neatly built, consisting chiefly of houses of medium size and appearance. It contained 2868 inhabitants in 1831, of whom 1477 were females. The town is noted for its excellent ale. Females find occupation in making bone lace. It also derives considerable benefit from the proximity of the Oxford canal; but its prosperity now, as formerly, chiefly arises from its well-attended markets and cattle-fairs. The market day is on Friday; and the fairs are held on Easter-Friday, first Friday in June, August 5th, Friday after Old Michaelmas, and two following Fridays, and the third Friday in December.

There is a charity-school, in which thirty poor boys are clothed and educated. It is supported by subscriptions, assisted by the dividends on 1000*l.* stock, given in 1811 by Mr. Walker in pursuance of his father's intention; out of this, however, 14*l.* is annually given to assist Sunday schools. A school for girls has just been founded (1835), which is supported by subscriptions. The school-room, built on purpose, is capable of containing sixty girls, the number intended to be educated therein.

(Bishop Kennet's *Parochial Antiquities, attempted in the History of Ambrosden, Burcester, and other adjacent parts;* Plot's *Natural History of Oxfordshire;* Gough's Camden's *Britannia; Beauties of England and Wales*, &c.)

BICÊTRE, an extensive building, close to the village of Gentilly, in the vicinity of Paris, now answering the purpose of a prison, an hospital, and a poor-house. It is on an eminence, about a mile from the Barrière d'Italie, on the south side of Paris, and a little to the west of the main road from Paris to Fontainebleau.

The site of this edifice was, in the beginning of the thirteenth century (about 1204) the property of John, Bishop of Winchester, in England, who built there a castle or residence (*château*), which bore from him the name of Winchester, from which by corruption have been derived the designations of Vichestre and Bicestre, or as it is now written Bicêtre. In 1294, Philippe IV. (*Le Bel*) King of France, confiscated the castle, and it remained for some time in the hands of the kings, his successors. In the troubles which agitated France during the reign of the imbecile Charles VI., the Duc de Berri, the king's uncle, was possessor of this castle, and retired here with the Duc D'Orleans in order to concert measures in opposition to the Duc de Bourgogne (Burgundy). Here was negociated a treaty called the Treaty of Winchester; and this being violated, the violation was called the Treason of Winchester. In the disturbances of this period, the castle was nearly destroyed, and remained, as it appears, some time in a very dilapidated state; the Chapter of the Cathedral of Nôtre Dame in Paris, to whom the Duc de Berri had, in 1416, given it with all its appendages, not undertaking any repairs.

In 1632 Louis XIII, to whom the site of the castle had come, erected upon the spot which that building had occupied a chapel dedicated to St. John, and some buildings for the reception of invalid officers and soldiers; but when his successor, Louis XIV., erected the Hôtel des Invalides, the Bicêtre being no longer required as a military invalid establishment, was converted into a branch of the Hôpital Général (otherwise called *La Salpétrière*). It served for the reception of the poor, of widowers, of boys whether sick or well, and of young men who had enfeebled their constitution or become diseased through debauchery. The treatment of these last was very barbarous; there were only twenty or twenty-five beds for more than two hundred patients, and consequently from eight in the evening till one in the morning part of them lay stretched out on the ground, and then turning out those who had occupied the bed for the early part of the night took their place. Besides which, they were, by the order of the managers, cudgelled (*fustigés*) before and after they passed under the treatment of the medical attendants. Is it to be wondered at if two-thirds of the patients died under this treatment? This disgraceful system of beating continued into the eighteenth century.

The Bicêtre served for a short time for the reception of foundlings. These were placed here in 1648, but from the number of deaths which occurred among them they were soon removed, as the air was considered unfavourable to them.

Up to the time of the Revolution the hospital was very ill-managed, and indeed continued to be so till the year 1801, when the general board of management for the hospitals (*l'administration générale des hospices*) was founded. At that time patients of all classes were crowded without arrangement, or regularity, or distinction of age, sex, or disease; though the abuses of former years, especially the shameful disproportion of beds to patients, had been somewhat diminished.

Since the year 1803 many improvements have been introduced into the management of this poor-house and hospital. Much has been done for the improvement of the hospital itself, by building, repairing, enlarging, and planting the grounds of it. Cleanliness, both in the wards and the persons of the patients and other inmates, has been more attended to; and improvements, both in the quantity and the quality of the food allowed, have somewhat ameliorated the condition of the inmates. Those who are able are set to work; there are shoemakers or menders, tailors, button-makers, straw-hat-makers, wool-combers or spinners, &c. The sick are classified; each class of diseases has its ward or wards; each patient his bed. In 1812 a new building was erected for the insane, who are classified into the incurable, the quiet, the curable: each class has a floor or other part of the building assigned to it. Insane females have another building appropriated to them. There is accommodation for about 800 mad patients. Those who are furious are not chained.

The average number of persons admitted to the hospital in ten years (1804-1814) was, on the average, 1947 per annum; the average number of those who left was 1495, and of those who died 420. Several of the inmates among the poor attain eighty years of age: in the ten years just mentioned, the lowest number of that age at any one time was 162, the highest number 193.

The part devoted to the purpose of a prison consists of six piles of building of several stories, with iron grated windows. It is under the direction of the Prefecture of Police, and the Prefecture of the department of the Seine. A company of veterans lodged in the prison serve to maintain order. The prison was at first intended for 400 prisoners, but during the year 1817 the average number of its inmates was 800.

Previous to the year 1819, the management of this prison was very bad; and though several very important reforms took place at that period, there are still many things that want improvement. The bread of the prisoners is of a bad quality; and the 'canteen' or tap-house, kept by the gaoler, is the source of gross corruption and oppression.

The prisoners, with the exception of those to be tried, those condemned to irons, and the sick, are set to work: of the produce of each prisoner's labour one-third goes to the government, one-third to the prisoner himself, and the other third goes to form a fund for him at his discharge from the Bicêtre. Two large wards, one for medical, the other for surgical cases, form the infirmary; there is a third ward for those who have cutaneous diseases, and who are not counted among the sick. There is usually about one in ten of the prisoners in the infirmary.

This union of the prison and of the poor-house and hospital in the same building is considered a great evil. (Dulaure's *History of Paris.*)

BICHAT, MARIE FRANÇOIS XAVIER, an eminent French anatomist and physiologist, was born Nov. 14, 1771, at Thoirette in the department of the Ain. He was the eldest son of Jean Baptiste Bichat, doctor of medicine, of the University of Montpellier, and of Marie Rose Bichat. He received the rudiments of his education at Nantua: and in 1788 entered the school of St. Yrénée at Lyons, where he showed a peculiar fondness for mathematics. From this seminary, while diligently pursuing the study of natural philosophy, he was driven by the Revolution, and returned to the residence of his father, under whom he began the study of anatomy; but his taste for mathematics predominating, he again went to Lyons in order to prosecute his favourite study, although, probably at the desire of his father, he at the same time attended a course of anatomy, and regularly visited the hospital of Lyons. Whatever may have been the ardour with which he devoted himself to the study of philosophy, it is certain that the facility with which he overcame the first difficulties of practical anatomy attracted the notice of his teachers, who, on becoming further acquainted with him, were still more impressed with the indications he gave of mental acuteness. Driven a second time from Lyons by the events of the Revolution, he went in 1793 to Paris, in order to study surgery under the celebrated Desault, at that time the great master of the surgical art. Without a single introduction, it is said without even a single acquaintance in this city, he entered the school of Desault, and diligently attended the lectures of his master. In this school it was the practice for some chosen pupils, each in his turn, to make an abstract of the lecture of the day, and on the next day, at the close of the lecture, in the presence of the second surgeon of the hospital, this abstract was publicly read. It chanced one day that the pupil whose turn it was to give the abstract of the lecture of the preceding day was absent; Bichat stepped forward from the crowd of pupils and offered to supply his place. His account was clear, accurate, and full; and was delivered with extraordinary calmness and precision. It was observed that he was very young; and it was found that he had not been a pupil more than a month. Desault, on hearing this from his colleague, Manoury, sent for Bichat, and from his very first conversation with the young man, formed such an estimate of him that he insisted on his immediately coming to reside with him; and subsequently adopted him as his son, associated him in his labours, and destined him for his successor. Bichat continued to live with his master, in uninterrupted friendship, until the death of Desault, which took place in the short space of two years from the commencement of their intimacy. After this event the first care of the pupil, as the best expression of his gratitude and affection, was to collect, arrange, and publish the works of his master. At the same time, he opened a school for teaching anatomy, physiology, and surgery; dissected for his own lectures; carried on an extended and laborious series of experiments on living animals; gave a course of operative surgery, and when in the evening he returned home exhausted with the labours of the day, instead of betaking himself to repose, he devoted the greater part of the night to the duty of putting in order the papers and works of his friend and master. His constitution, which was not vigorous, received a severe shock from this excessive labour; he appears to have suffered particularly from the exertion of public speaking, and in a short time his pursuits were interrupted by an attack of hæmoptysis, or spitting of blood.

In the confinement to his chamber which this alarming disease imposed, he appears to have matured his views on some of the most interesting departments of anatomy and physiology; and to have sketched the plan of the works in which those views were subsequently developed. No sooner had his malady disappeared, than he resumed the whole of his former occupations, which he pursued with an intensity to the last degree imprudent, and which for his own sake, and for the sake of science, is deeply to be deplored. His days he spent in public teaching, and his nights in the composition of his works. No entreaties of his friends, no signs of returning disease, which again more than sufficiently indicated the danger of his course, could induce him to moderate his labour. On the contrary, although now attacked with severe and constantly increasing dyspeptic symptoms, with a stomach scarcely able to digest any kind of food, he spent, during the heat of summer, several hours daily in a low and damp room, full of putrid exhalations arising from the maceration of animal substances, the tissues entering into the composition of which he was analyzing and studying. One day when he had been in this place longer than usual, or when, from previous exhaustion, he had been more powerfully impressed by its influence, he felt giddy on leaving the room, in consequence probably of the miasma to which he had been exposed. In this state, on descending the stairs of the Hôtel Dieu, his foot slipped and he received by the fall a severe blow on the head. He was taken up insensible, and was carried home with some difficulty: but the next day, notwithstanding he was suffering under violent headache, he thought himself sufficiently recovered to pursue his ordinary occupations, and accordingly began his usual round. In a short time, however, he fainted from fatigue, and in a day or two symptoms of fever came on, which soon assumed a typhoid character, and proved fatal on the fourteenth day of the attack. This was in the thirty-first year of his age; and thus perished a youth, for he had scarcely arrived at manhood, of extraordinary genius and energy—a melancholy example of a life which promised to be one of uncommon brilliance and usefulness, cut short by the intensity of its devotion to science.

Bichat gave an impulse to the progress of physiology, which is still powerfully felt not only in France, but in Great Britain, and in every other country in which the science is known. The idea had been suggested before his time, that the animal body consists of a congeries of organs, and that there are primary substances which enter in common into the composition of the several organs; but he was the first, by a systematic analysis, to reduce the complex structures of the body to their elementary tissues, and to ascertain the properties, physical, chemical, and vital, which belong to each simple tissue. This he has done to an extent, and with a degree of completeness truly astonishing in a first attempt, in his *Anatomie Générale*, a work which alone would have given him immortality; which, in the production of the material that constitutes its subject matter, indicates minute and laborious research, elaborate and extended experiment, and great manual and practical skill; and in the general conclusions deduced and established, a truly philosophical mind; and which, written wholly in nights succeeding such days as were spent by him, was composed and published in the space of a year. Scarcely had this work, which was immediately and universally recognised as a production of extraordinary genius, appeared, before it was followed by his 'Anatomie Descriptive.' Besides many separate memoirs of various excellence, he likewise published an elaborate work, entitled 'Recherches physiologiques sur la Vie et la Mort,' in which he suggested and developed the distinction between the organic and the animal life, a distinction of scarcely less importance to the surgeon and physician, than to the speculative and experimentalizing physiologist. It will be easily conceived that a man who thought and acted not so much with the rapidity as the impetuosity of Bichat must have fallen into some errors in a science which was then comparatively in its infancy. Of this he was himself not unconscious; but his errors are few; the truths he struck out and made part and parcel of the common mind are many and great. Time and experience would have rectified the former and added to the latter; would have moderated his ardour, restrained his imagination, matured his judgment, and made him, what so many qualities combined to render him, a truly great physiologist. The gratitude which posterity owes him can never be unmixed with regret. The history of his brief but intense life is pregnant with the most impressive lessons to the future cultivators of his science. (M. F. R. Buisson, *Précis Historique sur M. F. X. Bichat*, Paris, 1802.)

BICZOW, or **BIDSCHOW**, a circle in the north-eastern part of the kingdom of Bohemia, bounded on the north by Prussian-Silesia, on the east by the circle of Königingratz, and on the west by that of Bunzlau, and occupying an area of 981 square miles, nearly equal to that of Dorsetshire. The northern districts of Biczow are occupied by the 'Riesengebirge' (Giant mountains), on which, close upon the Silesian borders, lies the 'Navoric meadow,' where the Elbe takes its rise. This river flows through the northern part of the circle as far only as Arnau, whence it takes a circuit until it again touches the southern extremity of the circle: the Czidlina traverses its centre from north to south, and falls into the Elbe; and that portion of Biczow which lies on the western bank of this stream has in part an undulating surface, though it is in general level and productive. The mountainous and larger portion of the circle is dependent on its forests, pastures, and manufactures for its support; these manufactures consist of linens, woollens, cottons, glass, and iron: it is also the principal seat of commercial dealings. The open and level districts in the west and south are devoted to agriculture. It contains nine towns, nineteen market-villages, and 610 villages. The majority of the inhabitants, whose numbers are estimated at 248,500 (in 1817, 204,388), are of Bohemian extraction; the few of German descent being located near the Silesian frontiers. The chief town is New Biczow (Navy Biczow) on the Czidlina, which has a church and a synagogue, and about 3900 inhabitants; but the provincial administration has its seat at Gitshin (Gicyn), a walled town, delightfully situated on the same river, where the princes of Trautmansdorf possess a handsome residence, built by Wallenstein in 1610: it has two churches, a public school, a military seminary, and about 3800 inhabitants. In the north lies Hohenelbe (Wrchlaby), in the bosom of a picturesque valley, on the Elbe, a manufacturing town with a population of about 3000 souls, and a castle surrounded by a deep ditch; Arnau, lower down on the same river, has about 1430 inhabitants, wholly employed in weaving linens and cottons; and at the south-western extremity of the circle lies Podiebrad, with a castle in which invalid officers are quartered, a public school, and about 2840 inhabitants. East of this town stands Chlumetz on the Czidlina, with about 2620 inhabitants. The Counts Kinsky have a handsome residence here called Karlskron, built in the shape of a crown, to which a park full of game is attached. In the northern part of Biczow, and on a ridge of the Giant mountains, lies Neuwald or Neuwelt, a village containing extensive glass-works, belonging to the Counts Harrach: it is one of the largest establishments of the kind in the Austrian dominions. Near this spot is the 'Navoric meadow,' before referred to, whence the Elbe soon after falls down a cataract into the frightful abyss termed the 'Elbgrund.'

BIDASO'A, or **VIDASOA**, the name of a river in Spain, which rises in the mountains surrounding the valley of Baztan in Spanish Navarre. It is formed of two streams, which descend from the mountains of Achuela and Aracan in the same valley, and are united between the villages of Erranzú and Azpilcuéta, the latter situated on its right, and the former on its left bank. While flowing through the valley it bears the name of Baztanzubi, and runs with a gentle current between numerous neat villages situated on its banks. The stream becomes very narrow at the Garganta or passage of Ascápe, just before reaching the village of Oronoz, situated on its left bank. Increased by the numerous streams which descend from the neighbouring mountains and flow into it below a bridge on the boundaries of Baztan and Bertizarana, it continues its course, inclining westwards, and then receives the name of Bidasoa, a Basque word, meaning 'the way to the West.' It then flows due west through the valley of San Estevan-de-Lerin, and after receiving fresh supplies from the mountains which surround the district of Cinco-Villas, changes its direction northwards, and enters the province of Guipuzcoa below Endarrasa. It then crosses the universidad or district of Irun, which town is at a short distance from its left bank. At that place it forms the boundary between Spain and France. Not far from Irun is the small island of Faisanes or Pheasants; after which the river, continuing its course towards the north, and leaving on its left bank the town of Fuenterabía (Fons rapidus) in Spain and Andaya or Endaye in France, enters the ocean near Cape Higuer. Its whole course, measured upon the best maps, without reckoning its windings, appears to be from forty to fifty miles.

This river abounds in delicate fish, especially salmon, more than 4000 of which are yearly sent to the markets of Zaragoza, Madrid, and other places.

Within the last two centuries the Bidasoa has been the scene of important transactions more or less detrimental to the welfare of the people who live south of its banks. In 1660 the Treaty of the Pyrenees was signed in the small island of Pheasants by Cardinal Mazarin on the part of Louis XIII. of France, and by Count Don Louis de Haro on that of Felipe IV. of Spain. A new boundary line, drawn at Paris by the archbishop Pierre la Marca or Marque, in conjunction with the Spanish commissioners, was fixed between France and Spain, by which the latter nation lost the whole territory of Rousillon and Conflans in Catalonia. The Spanish king further renounced all claims to his dominions in the Netherlands, promised to pardon the revolted Catalonians, recognising expressly all their laws and privileges as perpetually inviolable, and gave the hand of his eldest daughter, the Infanta Maria Theresa, to the dauphin, afterwards Louis XIV., on the express condition that the French king should renounce, both for himself and his successors, all claims to the Spanish throne. Louis accepted the hand of the Spanish princess for his son; but however solemnly that treaty was celebrated, it was violated by France, and a grandson of Louis and Maria Theresa ascended the throne of Spain and abolished all the privileges of the Catalonians, declared by both parties to be inviolable. Ever since this time the cabinet of the Tuileries has exercised over that of Madrid the influence which it was the object of the treaty to prevent.

In 1808 Ferdinand VII. crossed the Bidasoa on his way to Bayonne, where he surrendered to the emperor of the French all his dominions. In January, 1823, the Duke of Angoulême crossed that river at the head of 100,000 men, intrusted by the sovereigns forming the Holy Alliance with a commission to destroy the representative government in Spain, which three years before they had solemnly acknowledged, and the constitution of Cadiz, which, assisted by the joint efforts of the British and Peninsular troops, had broken the ignominious yoke that Napoleon had placed on their necks. (See *Diccionario Geografico Historico de Academia*; Miñano.)

BIDDLE, JOHN, styled the father of the English Unitarians, was born in 1615, at Wotton-under-Edge in Gloucestershire, where his father carried on the trade of a woollen-draper. Being sent to the grammar-school of his native town, he gave such proofs of talent and proficiency as attracted the notice of George, Lord Berkeley, who conferred on him, at an earlier age than any other scholar, an exhibition of 10*l.* per annum. Before he was fifteen, besides a Latin oration on the death of a schoolfellow, which was much praised for the classical purity of its diction, he translated into English verse the eclogues of Virgil, and the first two satires of Juvenal, which were afterwards printed. In 1632, in his seventeenth year, he was sent to the university of Oxford, having been admitted a student of Magdalen Hall. Here he pursued his studies with much success, and took his degree of bachelor of arts in 1638, and that of master of arts in 1641. Previously to this, he had declined an offer of the grammar-school in his native town: but, being now elected master of the free-school in the crypt in the city of Gloucester, he accepted that appointment, and performed its duties in a manner that raised the character of the school, and made parents anxious to place their sons under his care. His theological studies meanwhile, were prosecuted with great ardour; and carrying into these the same freedom of inquiry which he had shewn in his philosophical and academical pursuits, he found the result of his investigations so different from what he had expected, that he printed for private circulation a small tract, entitled 'Twelve Arguments, drawn out of the Scripture, wherein the commonly received opinion touching the deity of the Holy Spirit is clearly and fully refuted.' Being as unreserved in expressing his doubts in conversation, as he was free in his inquiries, he did not scruple to declare his sentiments openly, and to assign his reasons for calling in question the truth of many doctrines which were commonly believed. This freedom of speech soon raised the cry of heresy against him. His printed tract was surreptitiously obtained for the parliamentary committee, then sitting at Gloucester, and on the information of a pretended friend, he was summoned before a bench of magistrates, and committed to the county gaol, Dec. 2, 1645, although suffering at the time from a dangerous fever. His release, on bail, was not obtained without considerable difficulty. At his examination before the magistrates, he delivered a 'confession of faith,' which failed to satisfy them in respect to his opinions concerning a plurality of persons in the Godhead. From the ambiguity of this document, it is evident that Biddle's mind was then in a state of transition from Trinitarianism to Unitarianism, without being quite decided either way. Six months afterwards, Archbishop Usher had a conference with him on the doctrine of the Trinity, without being able to convince him that it was founded in Scripture. About the same time he was summoned before the parliament, at Westminster, who appointed a committee to inquire into his case. The course pursued in this examination was intended to involve him in a denial of the Trinity; but on his refusing to make any admissions relative to the nature of Christ, as being foreign to the point on which he was accused, he was kept in a state of suspense and delay for nearly eighteen months, at the end of which time he addressed a letter to Sir Harry Vane, whose friendly interference brought the matter before the house. But the termination of these proceedings was unfavourable to Biddle, who was committed to the custody of one of the officers of the House of Commons, and deprived of his liberty for five years. In the meantime the case was referred to the assembly of divines then sitting at Westminster, before whom Biddle often appeared. Their answers to his doubts only increased his conviction of their validity, and made him feel the importance of giving them greater publicity. For this purpose he resolved to publish the 'Twelve Arguments,' &c., which had only been privately circulated. This was no sooner done than it raised such a spirit of opposition, that the book was immediately ordered to be burnt by the common hangman. Undaunted by this proceeding, in the year 1648, while yet in prison, he printed a 'Confession of Faith concerning the Holy Trinity according to the Scriptures, with the Testimonies of several of the Fathers on this head.' This was followed by another tract, entitled 'The Testimonies of Irenæus, Justin Martyr, Novatianus, Theophilus (who lived the two first centuries after Christ was born, or thereabouts), as also Arnobius, Lactantius, Eusebius, Hilary, and Brightman, concerning that one God and the persons of Holy Trinity.' The publication of these works in succession alarmed the Westminster divines to such a degree, that they determined upon the immediate necessity of silencing his opinions. For this purpose they prevailed upon the House of Commons to pass a measure by which the punishment of death was awarded to the denial of the Trinity, and to other doctrinal points, besides attaching severe penalties to minor offences. This act, or ordinance as it was styled, was especially aimed at Biddle; and he must certainly have been the first victim to it but from an opposition which was raised to it in the army, and this circumstance, aided by the dissensions in parliament concerning it, caused the ordinance to remain inoperative. His confinement continued with unabated strictness, until, after the death of Charles, the influence of the Independents gained ground, and with it, under the auspices of Cromwell and Fairfax, a relaxation of the penal laws relating to religion. Favoured by these changes, Biddle was released from prison under certain conditions, and retired into Staffordshire, where he was hospitably received into the house of a justice of the peace, who not only made him his chaplain and procured him a congregation, but at his death left him a legacy. His retirement was disturbed by Bradshaw, president of the council, who being informed of it, remanded him to prison. The loss of freedom, during his long confinement, was hardly a greater hardship than the loss of his friends, who were alienated from him by the odium cast upon him by the charge of heresy and blasphemy; not a single divine, except Dr. Gunning, afterwards bishop of Ely, paid him a visit while in prison. To his other sufferings were now added the severest privations, in consequence of his funds being exhausted; but in this extremity he was most unexpectedly relieved by some pecuniary assistance which he obtained for correcting the press for a Greek Septuagint, then being printed by Roger Daniel, in London, an employment for which he was singularly qualified from his being so conversant with the Scriptures, that he could repeat them *verbatim*, not only in English but in Greek, as far as the 4th chapter of the Revelations.

In 1651 an act of indemnity and oblivion was passed by parliament, which included all heretical offences. To this measure Biddle was indebted for his liberty, after a confinement, with a short intermission, of seven years. The first use that he made of his freedom was to collect around him those friends and adherents whom his writings had brought over to his opinions. They met on the Lord's Day for the purpose of expounding the scriptures, and gradually formed themselves into a society on this leading principle, viz. that 'the unity of God is a unity of person as well as nature.' The members of this society were called Bidellians, and from their agreement in opinion concerning the unity of God and the humanity of Christ with the followers of Socinus, they were sometimes denominated Socinians. The name which properly characterizes their fundamental opinion is that of Unitarians. This was, indeed, the rise of the English Unitarians. Among the early members of this church was the celebrated Thomas Firmin, whose charities are so highly extolled by Bishop Burnet. Another, who is less known, was Nathaniel Stuckey, a young man who published a translation of Biddle's 'Scripture Catechisms, for the use of Foreigners.' The publication of the two catechisms from which these translations were made brought the vengeance of government again upon their author. He was summoned to the bar of the House of Commons, and on his refusal to criminate himself, was committed to close confinement in the Gate-House, while his prosecutors, in order to silence him effectually, had recourse to that cruel ordinance which, never having received the force of a law, had lain obsolete. While the House was proceeding in this illegal manner, Cromwell dissolved the parliament, and Biddle again obtained his liberty, after ten months more imprisonment; but his book shared the fate of his former tract, being publicly burnt. Twelve months had scarcely elapsed after this release, when another danger overtook him. The doctrines advocated by Biddle being embraced by a considerable part of a Baptist congregation, their pastor, Mr. Griffin, challenged Mr. Biddle to a public discussion, during which his adversaries, availing themselves of some declaration made by him, purporting that Christ was not the Most High God, lodged an information against him, and obtained his committal to the Compter, July 3, 1655, from which prison he was removed to Newgate, and tried for his life on the ordinance against blasphemy and heresy. His trial was conducted with such indecent haste and such a total disregard to justice, that Cromwell himself interfered, and, in order to baffle the malicious designs of the prosecutors without seeming to yield too much to the more tolerant party, he banished Biddle to Star Castle, in St. Mary's, one of the Scilly Isles, with an annual subsistence of a hundred crowns. In this state of exile he continued for three years, when the solicitation of his friends and change of circumstances induced the Protector to grant a writ of *habeas corpus*, under which he returned, and no charge being preferred against him, he was set at liberty. He then became the pastor of an Independent congregation in London, the duties of which office he faithfully discharged until the elevation of the Presbyterian party, after the death of Oliver Cromwell, induced him to withdraw into the seclusion of the country. The sudden dissolution of that parliament brought him again to London, where he remained till the restoration of Charles II. The changes consequent upon that event involved him in new difficulties, and made him a sufferer in common with many of those who had been his persecutors. Biddle tried to evade the threatening storm which fell upon all who dissented from the Episcopalian mode of worship, now re-established, by retiring from public duty, but his caution was unavailing. The little assembly of adherents whom he occasionally met for religious purposes did not long elude the jealous notice of the magistracy. On June 1, 1662, he and his friends were apprehended and taken to prison: they were fined in 20*l.* each, and he in 100*l.* Not being able to pay this penalty, he was remanded to prison, where, in less than five weeks, through the pestilential atmosphere of the place and want of exercise, he contracted a disease which terminated his life, Sept. 22, 1662, in the forty-seventh year of his age. During his exile he drew up an essay to explain the Apocalypse; and in 1653 he published several small pieces, translated from the works of the Polish Unitarians, among which was Przipcovius's *Life of Faustus Socinus*. All his contemporaries describe him as a man of pure and irreproachable life; and Anthony Wood, who had no great love for heretics, said of him, that 'except his opinions, there was little or nothing blame-worthy in him.' (Toulmin's *Life of Biddle*.)

BIDEFORD, a port, borough, and market-town, on both sides of the river Torridge near its confluence with the Taw, in the hundred of Shebbear, in the county of Devon, thirty-six miles N.W. by W. from Exeter, and 180 W. by S. from London; in 51° 2′ N. lat., and 4° 3′ W. long. The parish extends over the borough and manor, and contains about 4510 English statute acres, and is bounded on the north by Northam, N.E. by Westleigh, S.E. by Weare Gifford, S. by Littleham, and W. by Abbotsham.

Bideford, sometimes, but erroneously, spelt Biddeford, derives its name from its local position, being situated near an ancient ford, 'by the ford.' We have no authentic account of it till the Conquest, when it was bestowed on Richard de Grandavilla, or rather de Granville, a Norman nobleman, by William the First. There is an ancient charter granted by Sir Richard de Granville as lord of the manor, to which unfortunatelythere is no date; but it appears from Prince, and from the names of the witnesses to the charter, that this Sir Richard de Granville lived in the thirteenth century, and that in the twenty-fourth year of the reign of King Edward the First he held one fee in 'Bytheford.' Camden mentions Bideford as a place of little consequence in his time, and Leland takes no further notice of it than to mention its bridge, which he calls a 'notable work, fairly walled on each side.' In 1573, through the interest of Richard Granville, Esq., Queen Elizabeth granted it a charter, and made the town a free borough. This charter was enlarged and confirmed by King James the First, in the seventh and sixteenth years of his reign. Although a borough, Bideford does not appear to have sent members to Parliament; it got excused from the *burden* as a very great favour, through the interest at court of the Granville family. In 1750 the manor of Bideford was sold by some of the descendants of William Glanville, Earl of Bath, to John Cleveland, Esq., and is now the property of his grand nephew, Augustus Saltren Willett, Esq., who has lately taken the name of Cleveland. The inhabitants of this place were not backward in the civil wars of Charles the First: two forts were erected, one on each side of the river Torridge, so as to command the river and the town; and another was built at Appledore (a small watering-place in the neighbourhood, lately consolidated with Bideford), which effectually commands the entrance of the rivers Torridge and Taw. These forts, as well as the towns of Bideford and Barnstaple, surrendered to Colonel Digby, who commanded the forces of the Royalists, on the 2d of September, 1643: so desperate was the struggle which preceded the surrender, that Lord Clarendon in alluding to it says, 'that the swords of the Royalists were blunt with slaughter, and that they were overburdened with prisoners.' In 1680 this place was visited by the plague, which swept off a great number of its inhabitants. Also about this time three old women, whose only crimes were age and poverty, were accused by the then flourishing and comparatively enlightened inhabitants of Bideford of witchcraft and sorcery, and were actually executed at Exeter for those offences. So deluded were these poor wretches themselves, that on the scaffold, either in the hopes of escaping punishment, or being persecuted into a sort of madness, they positively confessed themselves guilty, and acknowledged the justness of their punishment. Till within a few years the lower classes of Devonshire had implicit faith in witchcraft, and this is the case, even to the present day, in many parts of Cornwall.

The governing charter is that of James the First, granted on the 20th of December, in the sixteenth year of his reign. The government of the town is vested in a mayor, a recorder, seven aldermen, and ten capital burgesses, assisted by a town-clerk, a coroner, two sergeants at mace, sixteen constables, a beadle, a clerk of the market, a gaoler, and a town-crier. The mayor is elected on the 21st of September (St. Matthew's day) by the mayor for the time being, the aldermen, and the capital burgesses. He is appointed for one year and further until another alderman is declared and sworn mayor. He is a justice of the peace of the borough, and presides as chairman at the Quarter Sessions. He is also judge of the civil court of record and clerk of the market; his salary is 20*l.* per annum, but that never covers his expenses. The aldermen are elected in the same manner as the mayor; two of them sit as judges in the court of record. The recorder must be 'a discreet man, skilled in the laws of England,' and has power to appoint a deputy. Neither have any salary. A court leet is held here twice a year, and a general session quarterly, and petty session every other Monday, and at other times when required. There is also a civil court, or court of record, where actions, real and personal, are tried to any amount. It is now become nearly useless, and is only opened four times a year. The magistrates have an exclusive jurisdiction, and their duties are exceedingly laborious. By the Hundred Roll, temp. Edward I. it appears that formerly the lords of the manor of Bideford could inflict capital punishment.

The town principally consists of two large well-paved streets; the houses in these streets are generally well built and clean, but the rest are narrow and dirty. There is a good supply of water, and the town is pretty well lighted. There is a handsome bridge across the Torridge, said to have been built by Theobald Grenville early in the fourteenth century, and endowed with certain lands for its repair*. It consists of twenty-four arches, and is 677 feet in length. In 1638 it underwent a thorough repair. The annual revenue of this bridge, arising from the rent of lands given by several benefactors now unknown, and a stock of about 650*l.*, varies according to circumstances from between 300*l.* to 400*l.* In consequence of some abuses by the trustees of the bridge estates there was a decree in Chancery which ordered a new election of feoffees in 1608. The trustees are a corporation, and have a common seal: a hall was built for their use in 1758. There is also a good quay, the dues of which are paid to the lord of the manor, who pays for the lighting of it. The bridge is lighted by the trustees. The church, dedicated to St. Mary, is rather a fine building, originally in the shape of a cross, but it has been considerably added to at different periods, and the uniformity of the building has not always been attended to. It contains a handsomely carved stone screen and several interesting monuments; amongst others that of Mr. John Strange, and of three children of Mr. Henry Ravening, who died of the plague in 1646. Here was also buried an Indian, brought over by Sir Richard Grenville. He was baptized at Bideford by the name of Rawleigh, and is entered in the parish register as 'a natif of Wyngonditoia' (Virginia.) The living is a rectory in the archdeaconry of Barnstaple and diocese of Exeter, of the annual net yearly value of 633*l.* according to the *Ecclesiastical Revenues' Report*, 1835. The present patron is Lewis William Buck, Esq.

Bideford was at a very early date of considerable importance as a commercial town. The weaving of silk was introduced in 1650, and after the revocation of the edict of Nantes in 1685 many French Protestants settled here, and established a manufacture of cotton and silk. Wool was also exported to Spain. Brice says that in 1759 forty or fifty ships were employed in fetching cod from Newfoundland, and that there was a great export of herrings. Since that time the Newfoundland fishery has gradually declined, and now not more than one or two ships are annually fitted out for that purpose. The foreign trade is at present very trifling. The principal imports are timber from North America and the Baltic, coals from Bristol and Wales, and spices and tobacco from the West Indies. The exports are oak bark, which is shipped in great quantities to Scotland and Ireland, oats, malt, and sails, cordage, and articles of general supply to the fisheries of Newfoundland. Ship building is carried on to a great extent; there are nine or ten building yards, and several frigates were built here during the last war. There are also several potteries, principally for the manufacture of flower-pots. Anthracite, or culm, is found in the vicinity in sufficient quantity to be worked for economical purposes. One bed passes through the town, and there are two or three pits at the head of it. The same bed continues to the coast at Greenacliff, where it is worked for burning lime. The anthracite is accompanied by fossil plants.

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* There is a tradition that this bridge was erected by subscriptions raised in Devonshire and Cornwall by Grandison, Bishop of Exeter, who granted indulgences to all who contributed to the work.

In 1831 Bideford contained 997 houses and 4846 inhabitants, of whom 2169 were males, and 2677 females; 105 families were employed in agriculture, and 316 in trade, &c. There is a free grammar-school of very ancient date. It is not exactly known when it was endowed, but in 1689 Mrs. Susannah Stuckley gave the sum of 200*l.* to be laid out in land, which is now let for 57*l.* per annum. The salary of the master is 30*l.* per annum, for which he teaches ten boys appointed by the corporation. There is a national school, which, according to the last report (1835), had 117 boys and 98 girls; and also a charity-school for writing, reading, and arithmetic: the master has a salary of 10*l.* per annum, paid by the trustees of the bridge estate. The Dissenters have a school here which contains 100, and the Methodists one with fifty scholars. An hospital was built in the old town for twelve poor families pursuant to the will of Mr. Henry Amory, who died in 1663. In 1810 Mrs. Margaret Newcommen left a considerable fund for poor Dissenters in this and the adjoining parishes, and Mr. John Strange founded four almshouses in 1646. The lands of the corporation are charged with the payment of 1*l.* a-year to the poor of the borough, and they usually add about 10*l.*, which is laid out in fuel and clothing.

To the north-east of Bideford, near the mouth of the river Torridge, is a beach of pebbles about three miles in length, and of considerable depth and breadth: these stones have for many years been used for ballast and paving. The pebbles are generally round or oval, from six to eighteen inches in diameter, and curiously variegated with veins of different colours. On them grows the *lichen marinus*, or sea liverwort, more commonly known by the name of lavor, which is much esteemed as a pleasant and wholesome food. It is often packed in pots and sent to London. Opposite this part of the coast is Lundy Island, about five miles long and two broad: its chief inhabitants are rabbits and wild fowl. Although ten or eleven miles from the nearest land, it has several springs of fresh water. According to Risdon, it formerly had a castle on it, which was inhabited and fortified by William Moriscoe, a famous pirate, who, after being for many years the dread of the vicinity, was executed, with sixteen of his companions. The celebrated Sir Richard de Granville, the friend of Sir Walter Raleigh, and the settler of Virginia, resided at Bideford for many years after his expedition. In 1591, when Vice-admiral of England, he sustained with his single ship the most glorious and unequal conflict recorded in naval history, against the whole fleet of the enemy, and after having repulsed them sixteen times, only yielded when all his powder was spent. He died of his wounds two days afterwards on board the Spanish admiral's vessel. His own ship, reduced to a hulk, sunk before it could get into port. Bideford was the birth-place of the famous Dr. Shebbeare, who was sentenced to stand in the pillory in 1758 for his political writings. The sheriff, who allowed him as a favor to stand on the pillory with a servant in livery holding an umbrella over his head, was prosecuted for not properly enforcing the sentence. (Lysons's *Britannia*; *Report of the Municipal Corporation Commissioners*; Watkins's *History of Bideford*; *Correspondence from Bideford, &c.*)

BIDLOO, GODEFROID, an anatomist, born at Amsterdam, in 1649; but of whose parentage or early education we can find no record. He at first studied surgery, which he practised with great success, and was at one time surgeon to the forces. Afterwards he took the degree of doctor of medicine, and was appointed physician to William III., king of England, by whom he was recommended to the curators of the university of Leyden so strongly, as to induce them to elevate him to the professorship of anatomy and surgery, in 1694.

In 1685 he had published at Amsterdam, in one volume folio, 105 plates, representing the anatomy of different parts of the human body, which were admirable as works of art, having been engraved by Lairesse, but in many instances were deficient in accuracy. This work was reprinted at Leyden in royal folio, with 114 plates, and again at Utrecht in 1750, with a supplement. Bidloo accused Cowper, an English anatomist, of having reprinted it without acknowledgment, and with only a few alterations. In this charge there was considerable truth, and Cowper made in reply a very lame defence. Bidloo also carried on with much asperity a controversy with Frederick Ruysch, who exposed several of the errors in his works. The other writings of Bidloo are: 'De Anatomes Antiquitate Oratio,' Leyden, 1694; being his inaugural discourse, when he took possession of the chair of surgery and anatomy. 'Vindiciæ quarumdam Delineationum Anatomicarum contra ineptas Animadversiones Frederici Ruysch,' 4to. 1697. 'Observationes de Animalculis in Hepate Ovillo et aliorum Animalium detectis,' 4to. 1698. 'Guillielmus Cowperus Criminis Litterarii citatus coram Tribunali Societatis Anglicæ,' 4to. 1700; this is the work in which he accused Cowper of plagiarism. 'Exercitationum Anatomico-Chirurgicarum Decades Duæ,' 4to. 1708; in which occur several important remarks on surgical diseases. 'Opuscula omnia Anatomico-Chirurgica edita et inedita,' 4to., with plates, 1715.

Bidloo died in 1713, in the 64th year of his age. He had a brother named Lambert, who wrote on botany; and a nephew Nicolas, who became physician to Peter the Great.

BIDPAI. With the exception of the Bible there is probably no work that has been translated into so many languages, and at so early an epoch, as the collection of tales which passes by the title of the Fables of Bidpai, or Pilpay. A tradition very generally received attributes to the Hindus the first composition of this work, and recent discoveries in Oriental literature have fully confirmed the truth of this report.

Fables and tales in which animals are introduced as actors, and in which moral principles and maxims of prudence are inculcated by example and precept, seem from an early age to have been current among the Hindus. Several collections of such stories, written in Sanscrit, are still in existence. The oldest of them, and evidently the parent stock of the Fables of Bidpai, is the work known in India under the name of the *Pancha Tantra*, or the 'Five Sections,' so called from its being divided into five books. This work has been translated from the Sanscrit into the Tamul language, and again from the Tamul into French, by the Abbé Dubois. An analytical account of it, drawn from the Sanscrit original by Mr. H. H. Wilson, is printed in the *Transactions of the Royal Asiatic Society*, vol. i. pp. 155-200. An abridgment of the *Pancha Tantra*, called the *Hitôpadêsa*, or 'Salutary Instruction,' has become more generally known in Europe than the great original work. It has been translated into English by Sir Charles Wilkins (Bath, 1787, 8vo.), and by Sir William Jones (*Works*, vol. vi. 4to. edition): several editions of the Sanscrit text have been published. Both the *Pancha Tantra* and the *Hitôpadêsa* consist of prose intermixed with poetry: the stories are told in prose, but the narrative is constantly interrupted by sentences in verse, borrowed from the works of nearly all the celebrated poets that preceded the epoch of their composition. The names of the compilers of the *Pancha Tantra*, as well as of the *Hitôpadêsa*, are unknown. Vishnusarman, who is sometimes called the author of the *Hitôpadêsa*, is only one of the principal interlocutors in both works, and is the narrator of the greater number of fables contained in them. The age at which the *Pancha Tantra* must have been composed can, however, at least approximatively, be determined. In the first book, a passage of an astronomical work by Varâhamihira is cited, which occurs, without variation, in the two best manuscripts of the original that Mr. Wilson had an opportunity of consulting; and as it is pretty well ascertained that Varâhamihira wrote during the latter half of the fifth century (*Asiatic Researches*, vol. ix. p. 363; Bohlen, *Das alte Indien*, ii. 280), it follows that the *Pancha Tantra* must have been composed subsequently to that epoch. According to an antient tradition (recorded in the introduction to the extant Arabic and Persian editions of the Fables of Bidpai, in the Shâhnâmeh of Firdusi, and by nearly every oriental writer on the history of the Sassanide dynasty), Barzûyeh, an eminent physician at the court of the Persian king, Nushirwan, who reigned between A.D. 531 and 579, visited India in search, it is said, of a plant which had been reported to possess the power of restoring dead bodies to life, and on his return to Persia, instead of that fabulous drug, imported into his country a translation into Pehlvi of the collection of stories now under our consideration. Some circumstances to which Baron de Sacy draws our attention render it not unlikely that Barzûyeh may have been a Christian monk. (See the *Mémoire* prefixed to De Sacy's edition of *Calîlah wa Dimnah*, pp. 36, 37.) Certain it is that this Pehlvi version of the Indian tales, or rather the Arabic translation made from it two centuries later, became the channel through which these fables subsequently found their way to nearly every other nation of western Asia and of Europe. The author of the Arabic translation was a Persian, who had originally professed the religion of the Magi, and was named Rûzbeh, but on his conversion to the Mohammedan faith took the name of Abdallah ben Mocaffa. He lived during the first half of the eighth century, and was murdered by order of the Abbaside caliph, Mansur, probably between the years 137 and 139 of the Hegira (A.D. 754-756). His Arabic translation of these fables is in the East usually called 'the book of *Calîlah* and *Dimnah.*' It is thus designated in allusion to the names of two jackals which act a conspicuous part in the first story of the Arabian version, and which we recognise in the Sanscrit original under the forms *Carataca* and *Damanaca.* (See the beginning of the first book of the *Pancha Tantra,* where this is likewise the first story; and the first story in the second book of the *Hitôpadêsa,* p. 47, edit. Schlegel.) In the title of a Syriac translation mentioned by Ebed Jesu, and attributed by him to Bûd Periodeuta, the same two animals are called *Calîlag* and *Damnag.* Every trace of this translation is now lost; but if Assemani is correct in saying that Bûd lived early in the sixth century, this Syriac translation must have been made from the Pehlvi version, or perhaps from the Indian original itself.

The narrator of the stories is, in the Arabic version, called *Bidpai:* in the Sanscrit original no name similar to this occurs, and the explanations of it proposed by several Oriental scholars do not appear to us satisfactory; but it is certain that the name *Pilpay,* by which the work is at present most generally known in Europe, is a corruption of *Bidpai.*

From the Arabic text of Abdallah ben Mocaffa sprung several translations into the (modern) Persian. One of the earliest into verse is attributed to Rudeghi, a blind poet who flourished during the earlier part of the tenth century. It was followed by a translation into prose by Nasrallah, who wrote about the year 515 of the Hegira (A.D. 1121). The most admired Persian translation is, however, that written about the commencement of the sixteenth century, by Hussain Vâëz Câshefi, and known under the title of *Anwâr-i-Soheili;* though less exact and complete than the later one by the celebrated vizir Abulfazl, named *Ayâr-i-Dânish.* The *Anwâr-i-Soheili* was, soon after its appearance, translated into Turkish, under the title *Humâyûn-Nâmeh,* by Ali Chelebi, who dedicated his performance to the Osman sultan, Suleiman I.

The earliest translation of the work of Abdallah ben Mocaffa into a European language is the Greek version by Simeon, son of Seth, who flourished towards the close of the eleventh century. S. G. Stark published it, from a Hamburg manuscript, in Greek and Latin, but without the introductory chapters prefixed to the work partly by Barzûyeh and partly by Ebn Mocaffa, under the title *Specimen Sapientiæ Indorum Veterum,* &c. (Berlin, 1697, 8vo.) The chapters wanting in the Hamburg manuscript were edited, though still incomplete, from a manuscript preserved at Upsala, by J. Floder. (*Prolegomena ad librum* Στεφανίτης καὶ Ιχνηλάτης, Upsala, 1780.) It does not appear that translations into other European languages flowed from the Greek text of Simeon.

The means by which the Indian stories first became known to most of the nations of Europe, was a translation from the Arabic into Hebrew, made by Rabbi Joël, a learned Jew, probably a native of Spain, who seems to have flourished during the twelfth century. Of his Hebrew version of the book of *Calîlah and Dimnah,* a single incomplete manuscript has been preserved in the Royal Library at Paris, of which Baron de Sacy has given an ample account in the ninth volume of the *Notices et Extraits des MSS. de la Bibliothèque du Roi.* The Hebrew text of Rabbi Joël was, in the thirteenth century (probably between A.D. 1262 and 1278), turned into Latin by Johannes de Capua, a converted Jew, who dedicated his translation to his protector, the Cardinal Matthew de' Rossi (Matthæus de Rubeis). It bears the title *Directorium Humane Vite, alias Parabole Antiquorum Sapientum;* and has been printed once, without date, but probably in 1480. This Latin interpretation was again translated into Spanish by Maestro Fadrique Aleman de-Basilea, under the title *Exemplario contra los Engaños y Peligros del Mundo* (printed at Burgos, 1498, fol.), and into German by Count Eberhard of Würtemberg, under the title *Beispiele der Weisen von Geschlecht zu Geschlecht* (printed at Ulm, 1483). The *Exemplario contra los Engaños* seems to have been the source from which Agnolo Firenzuola drew the substance of his *Discorsi degli Animali:* here, however, the scenes of the several narratives are laid in various real localities, transferred to Italy. (See *Opere di Messer Agnolo Firenzuola,* Florence, 1763, 8vo. tom. i. pp. 5-89.) Another Italian version of these stories, in Doni's *Filosophia de' Sapienti Antichi,* is little more than a translation of the Latin text of Johannes de Capua.

In the Royal Library at Paris there is a manuscript of another Latin translation, which was made in the year 1313 by Raymundus de Byterris (Raimond de Béziers), by order of Queen Johanna of Navarra, the wife of Philip le Bel. The author says that he had a Spanish original before him, which is now lost, but which was probably a translation from the Hebrew of Rabbi Joël.

Besides the Latin version from the Hebrew by Johannes de Capua, there seems to have existed another Latin translation made from the Arabic, which became the source of a translation into the Castilian language, said to have been made about the year 1289 at the command of King Alfonso X. of Castilia.

(See the *Mémoire Historique sur le livre intitulé Calîlah et Dimna,* prefixed to Baron de Sacy's edition of the Arabic text of the Fables of Bidpai, Paris, 1816, 4to., and the dissertations on the same subject, and by the same authors, in vols. ix. and x. of the *Notices et Extraits des MSS. de la Bibliothèque du Roi;* H. H. Wilson's *Analytical Account of the Pancha Tantra,* in the *Transactions of the Royal Asiatic Society,* vol. i. p. 155.)

BIELEFELD, a minor circle in the administrative circle of Minden, in the north-eastern part of Westphalia, intersected by a triple chain of mountains, of which chalk, sand, clay, and marl form the constituent parts: the mountains commence near Oerlinghausen in the earldom of Lippe, and pass from the territory of Oznaburg into this and the adjacent circle of Halle. Cultivation is carried high up their slopes; and their summits, of which the Sparenberg near the town of Bielefeld is one of the most elevated, are in part naked and in part crowned with woods. The circle is watered by the Lutter and Aa, and their small tributaries; it is one of the most thriving districts in the Prussian dominions, as well from the extent to which the manufacture and bleaching of linen is carried, as from its rich growth of grain, flax, and hemp, and the numerous droves of horned cattle which it rears. In no quarter of Europe is a finer description of linen-yarn spun than at Isselhorst: iron-ware, tobacco, woollens, leather, soap, copper and copper-ware, yarns, and damask cloths, are also among the manufactures of this circle. It contains an area of about 95 square miles, and had, in 1828, 33,292 inhabitants, and at the close of the year 1831, 35,316, of whom about 32,000 were Protestants. At the last-mentioned date its stock of horses amounted to 1277; of horned cattle, to 7349; and of sheep and goats to 4021.

Bielefeld, its capital, on the high northern road from Elberfeld to Minden, in 52° 1′ N. lat., and 8° 30′ E. long., lies at the foot of the Sparenberg, on the Lutter or Lutterbach, in the midst of a highly picturesque country; it is surrounded by ramparts and a broad ditch, which have been laid out in agreeable walks. The most remarkable buildings in the town are the churches of St. Nicholas and St. Mary, the church attached to the Franciscan monastery, and the new town-hall. It possesses a gymnasium, an orphan asylum, and infirmary, and a society of music, manufactures of linen and damask cloths, yarns, cottons, ribands, soap, tobacco, iron and steel, meerschaum pipeheads, &c., and extensive bleaching-grounds. Its sale of linens and threads is estimated at nearly 80,000*l.* a-year. In December, 1831, the number of its inhabitants was 5539. It lies about 260 miles a little to the south-west of Berlin.

BIELITZ, a duchy of Austrian Silesia, in the circle of Teschen, between the Vistula and Biala, and bounded on the north-east by the kingdom of Galicia. It was a minor sovereignty until it came into the possession of the princely line of Sulkoffsky, in the year 1752, when Francis I., emperor of Germany, erected it into a dukedom. It is eight miles in length, and about the same distance in breadth; and, inclusive of the two estates of Ernsdorf and Czechovitz, which are independent properties, it contains 1 town, 19 villages, 2 colonies, 2600 houses, and nearly 10,000 inhabitants, one-half of whom are Protestants, and the other half Roman Catholics.

Bielitz, the capital of the duchy and the seat of the ducal administration, lies close to the Galician frontier, on a declivity at the north-western base of the Carpathian mountains, and on the left bank of the Biala. It is a well-built town, and has a spacious market-place, but the streets are narrow: of its three churches, two are Roman Catholic, and one is Lutheran: the Lutherans have also two schools here. Besides the ducal residence, now appropriated for the public offices, which is an antient structure with a handsome park attached to it, Bielitz possesses a hospital, and an asylum for the indigent, and very considerable woollen, kerseymere, and linen manufactures. It is the deposit for the rock-salt brought from Galicia for the consumption of Moravia and Silesia, and carries on an extensive traffic in its own productions, as well as in wool and Hungarian wines, &c. with Poland, Russia, Moldavia, and the Austrian possessions. This town, which has been rebuilt since its total destruction by fire on the 6th June, 1808, contains at present about 5400 inhabitants, and lies in 52° 1′ N. lat., and 29° 55′ E. long. It is connected, by a stone bridge across the river, with the town of Biala in Galicia, the population of which amounts to about 4000 souls, who have risen into much affluence by the manufacture of woollens, coarse linens, nails, &c.

BIELLA, a province of Piedmont, which makes part of the Intendenza or division of Turin: it contains 78 communes and 91,000 inhabitants. It is divided by a ridge of mountains to the north from the province of Valsesia, and by the river Sesia to the east from the province of Novara. To the south it touches the province of Vercelli, and that of Jvrea to the west. The province of Biella is watered by the rivers Cervo and Elvo, which are affluents of the Sesia. Biella, with 7000 inhabitants, the capital of the province, is thirty-six miles N.N.E. of Turin. It is a bishop's see, and has a royal college for secondary instruction, and a court of justice, 'tribunale di prefettura,' for the whole province. It has also manufactures of woollens and of silks. The principal products of the soil are corn, rice, and hemp. Silkworms are also reared to a considerable amount. The fields are irrigated by canals, as in most other parts of northern Piedmont.

BIENNE, BIEL in German, a town of the canton of Bern, situated at the foot of the Jura mountains, and about half-a-mile from the lake of the same name. The river Suze, which comes from the valley of Erguel, passes through the town, and afterwards enters the lake. The territory of Bienne is well adapted for the vine, and other fruit trees. The town of Bienne, with about 3000 inhabitants, has some cotton manufactures and some tan-yards. The language is the Swiss-German, but most people, especially in the country around, speak also French. The inhabitants of Bienne are Protestants, and they have both a French and a German church. Bienne was made a free imperial town by Rudolf of Hapsburg in the thirteenth century, under the high dominion of the Bishop of Basel. It afterwards became an ally of the Swiss cantons, and it remained as such until the French invasion of 1798, when it was united to France. It recovered its independence in 1814, and was then united to the canton of Bern. Bienne is a pleasant little town, and the inhabitants are noted for their sociable and hospitable disposition. Bienne is about seventeen miles N.W. of Bern. The lake of Bienne is about ten miles long, two-and-a-half miles in its greatest breadth, and 217 feet in its greatest depth. It abounds with fish, especially trout. The level of its water is 1330 feet above the sea, and several feet lower than that of the lake of Neuchâtel. The river Zihl or Thiele, which is the outlet of the latter, enters the lake of Bienne at its S.W. extremity, issues out of it again at Nidau at the opposite end, and then falls into the Aar. The small island of St. Pierre, celebrated on account of Rousseau's residence in 1763, is in the middle of the lake of Bienne.

BIENNIALS are plants which require two seasons of growth to produce their flowers and fruit; they differ from annuals in nothing but this circumstance, perishing as soon as their seeds are ripened. They are usually sown about Midsummer, when they become healthy, robust plants by the winter, and are ready to start into rapid growth the succeeding year as soon as the warmth of the returning spring is sufficient to excite them into action.

BIESBOSCH, or BIESBOS, a lake or marsh situated between the provinces of North Brabant and South Holland. Its name means a 'marsh of reeds,' a term derived from the great quantity of reeds that grow in its shallower parts. It was formed in 1421 by a great inundation, which was occasioned by the rupture of several dykes near Dort, when the sea rushed in and swamped a vast tract of country, of about 90 square miles, and swept away a number of villages and many thousand persons, with a large quantity of cattle. (Büsching's *Geography.*) It was reported that a peasant, out of spite against a neighbour, secretly broke a dyke opposite to the house of the latter, near Dort, and the tide rising higher than he expected, widened the breach and overflowed the whole country. (*Delices des Pays Bas.*) The Waal and the Maas flow into this lake on its eastern side, and issue out of it by several branches, known generally by the name of Maas: the widest of these branches, also called Hollands Diep, runs into the sea between the islands of Beijerland and Goeree, by Hellevoetsluis. The northernmost branch of the Maas, after coming out of the Biesbosch, flows by Dort, and forms the river of Rotterdam and Briel. Part of the ground lost in the great inundation of 1421 has been since recovered, and there are now several islands in the midst of the Biesbosch which are cultivated and inhabited.

BIE'VRE, a small river of France, a tributary of the Seine, only remarkable as passing through Paris close to the great manufacture *des Gobelins.* This stream, in the lower part of its course, is sometimes called *Gobelins.* It rises near Versailles, and its whole course does not much exceed 20 miles.

BIGA, a chariot or car drawn by two horses: called by Suetonius (*Calig.* c. 19.) *Bijuge curriculum.* The biga was the most common chariot in use among the Romans. They had also their quadrigæ, and sometimes their sejuges, septim-juges, &c., and Suetonius assures us that Nero, when he was a performer in the Olympic games, made use of a decem-jugis, a chariot drawn by ten horses coupled together. (Suet. in Ner. c. 24.)

Pliny attributes the invention of the biga to the Phrygians. (*Hist. Nat.* lib. vii. c. 56.) Isidorus says the inventor was Ciristines the Sicyonian. (*Origines*, lib. xvii. c. 35.)

The Roman silver coins stamped with the form of a chariot drawn by two or four horses were called *bigati*, and *quadrigati.* (See Pliny, *Hist. Nat.* lib. xxi. c. 3.) Hence Livy (lib. xxxiii. c. 23.) uses the term *argentum bigatum.* The bigati, quadrigati, and victoriati were all of equal value, and differed only in the impress from which they derived their several names. The biga was one of the emblems of victory.

BIGAMY, in the canon law, signified either a second marriage after the death of the first wife, or a marriage with a widow. It incapacitated men for holy orders; and until the 1st Ed. VI. c. 12, s. 16, it was a good counterplea to the claim of benefit of clergy. (Wooddesson's *Vinerian Lectures*, i. 425.)

Bigamy, by the English law, consists in contracting a second marriage during the life of a former husband or wife, and the statute 1 James I. c. 11, enacts that the person so offending shall suffer death, as in cases of felony. (See Hale's *Pleas of the Crown*, i. 692, fol. ed. 1736.) This statute makes certain exceptions which it is not necessary to refer to, as it has been repealed by 9 George IV. c. 31, s. 22, and operates only with respect to offences committed on or before the 30th June, 1828. The statute last cited enacts, "That if any person being married shall marry any other person during the life of the former husband or wife, whether the second marriage shall have taken place in England or elsewhere, such offender and any person aiding him shall be guilty of felony and be punished by transportation for seven years, or by imprisonment (with or without hard labour) for a term not exceeding two years." The statute excepts, first, any second marriage contracted out of England by any other than a subject of his Majesty; second, any person whose husband or wife shall have been continually absent during seven years, and shall not have been known by such person to have been living within that time; third, a person divorced from the bond of the first marriage; fourth, one whose former marriage shall have been declared void by the sentence of a court of competent jurisdiction.

With respect to the *third* exception it has been determined in a case where a Scotch divorce *a vinculo* was pleaded, that no sentence of any foreign court can dissolve an English marriage *a vinculo* unless for grounds on which it was liable to be so dissolved in England; and that the term 'divorced' applies to the sentence of a spiritual court within the limits to which the statute extends. The *fourth* exception cannot be taken advantage of, if the first marriage has been declared void only collaterally and not directly; or if admitting it to be conclusive, it can be shown to have been obtained fraudulently or collusively. See, as to this part of the subject, MARRIAGE and DIVORCE; and as a matter of curiosity, the trial of the Duchess of Kingston before the peers in parliament, in 1776, for bigamy. (Bacon's Abridgment by Dodd, titles *Bigamy* and *Marriage*.)

BIGENERI'NA (Zoology). D'Orbigny's name for a genus of those minute cephalopods which he has so well illustrated. There are two subgenera; the first consisting of the *Bigenerinæ* properly so called, with a central opening, and the other of the *Gemmulinæ* (D'Orbigny) with a marginal opening.

BIGGLESWADE, a market-town in the hundred of the same name, in the county of Bedford, forty-one miles N.N.W. from London, and nine miles E.S.E. from Bedford. It is situated on the great road to York, near the river Ivel, over which there is here a stone bridge. The river has been rendered navigable to the town, by which means the town and neighbourhood are supplied with coals, timber, and oats. Leland described Biggleswade as having 'a good market and 2 faires.' It has still a good market, particularly in corn, which is one of the largest in England, held on Wednesdays; and its fairs are now five, namely, February 14, Saturday in Easter week, Whit-Monday, August 2, and November 8. It does not appear under what charter the market is held, but it is probable that it was granted to some of the bishops of Lincoln, to which see the manor was annexed by Henry I. in 1132. The manor was surrendered by Bishop Holbeach to Edward VI. in 1527. It is now held by lease under the crown, the king being lord of the manor.

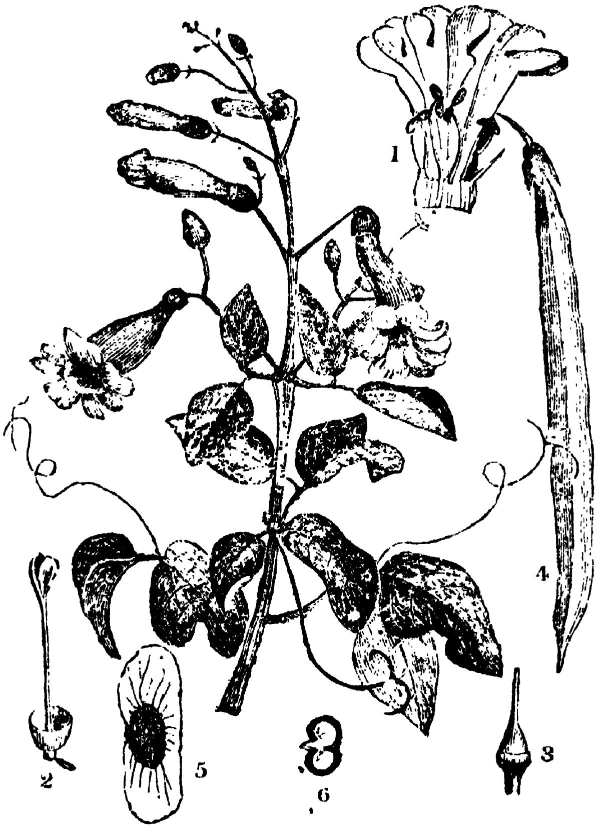
The town is within the jurisdiction of the county magistrates, who hold a petty session for the hundreds of Biggleswade, Clifton, and Wixamtree. The continual passage of travellers through Biggleswade, the expenditure of the strangers who resort to its market and fairs, and the ready sale which the town thus obtains for its own productions, have combined to extend the population and prosperity of the place. The parish, which includes the hamlets of Stratton and Holme, contained, in 1831, 606 houses, with a population of 3226 persons, of whom 1662 were females. In the year 1785 the town sustained great damage by a fire, which raged for some hours with great fury. Not less than 150 houses were consumed, besides corn-chambers, malt-houses, &c., all in the centre of the town around the market-place. The damage was estimated at 24,000*l*. The town is, however, indebted to this calamity for its present improved appearance, as the houses have been mostly rebuilt with brick in the modern style. The parish church, which is a handsome Gothic structure, was built in 1230. It was formerly collegiate, and several antient wooden stalls were remaining till 1832, when the church was thoroughly repaired and re-arranged, partly by the assistance of the Incorporated Society for Repairing Churches. The living is a discharged vicarage, in the diocese of Lincoln, worth 300*l*. per annum. The living is a peculiar, belonging to the prebendary of Biggleswade, in Lincoln cathedral. Speed mentions that there was here a college dedicated to the Holy Trinity, valued at 7*l*. at the Dissolution; but as he says it was founded in the church of St. Andrew here, Tanner thinks that what Speed calls a college was only a chantry belonging to the guild of the Holy Trinity. There are several good inns; and a small manufactory for white thread lace and edging, which affords employment to females. A flour-mill, worked by steam, has also been lately erected.

Sir John Cotton bequeathed, for charitable uses, the sum of 1800*l*., which was received in the year 1752. It was to be laid out in the purchase of freehold lands and hereditaments, and this parish was to enjoy the benefit of three-ninths of the rents. One of these parts was to augment the living, and the other two to be paid to a master, to be chosen by the lord of the manor of Stratton, for teaching twelve poor children of the parish the English tongue, writing and arithmetic, and instructing them in the principles of the Christian religion according to the Church of England. When the Charity Commissioners made their report in 1821, the property was let for 162*l*. per annum, though supposed to be really worth 300*l*. The two-ninths applicable to the purpose last specified amounted to 36*l*. a-year, which was appropriated as directed by the benefactor. The children are all boys, nominated by the lord of the manor of Stratton. They are received into the school as soon as they are able to learn to write, and remain four or five years, unless the parents remove them. The parents provide books. The number of pupils is duly kept up, and there are numerous applications for admission. The disadvantageous lease expired in 1827, and the commissioners recommended that in consideration of the great increase which the master's salary would receive under a new lease, the trustees should make a corresponding increase in the number of children admitted to the benefit of the charity. The master had usually from fifteen to twenty pay scholars, and also instructed the boys belonging to the charity of Edward Peake, who, in 1755, bequeathed a tenement, and a rent-charge of 13*l*. a-year for the instruction of eight poor boys. Four charitable bequests for the use of the poor of this parish produce altogether 27*l*. 17*s*. 3*d*. per annum.

At Stratton, a short distance south-east of Biggleswade, as a ploughman was ploughing the land rather deep in 1770, he discovered a yellow earthen pot, containing 300 gold coins (rose nobles) of Henry VI. They were a little larger than a half-crown piece, but, being very thin, were not equal by twenty grains to the weight of a guinea.

(Lysons's *Magna Britannia; Beauties of England and Wales; Fifth Report of the Commissioners for inquiring concerning Charities*.)

BIGNONIA'CEÆ, are monopetalous dicotyledonous plants, with irregular flowers, a pod-like fruit, winged seeds without albumen, and usually a climbing habit. They are mostly shrubs, inhabiting the hotter parts of Asia, Africa, and America, and unknown in Europe except in a cultivated state; some of them are trees of considerable size. They generally are remarkable for the large size and rich or delicate colouring of their trumpet-shaped flowers. No sensible properties of much importance have been recognised among them: one of them produces the Chico dye, a sort of reddish feculent substance with which some of the South American Indians paint their bodies. Several are valuable for their timber, which possesses extreme hardness. The most interesting genera are Bignonia, many species of which are common in our gardens, Tecoma, Catalpa, and Eccremocarpus, the three last of which will be mentioned in their proper places.



[Bignoniaceæ—Bignonia lactiflora.]

1, a corolla slit open; 2, a cup-shaped disk, out of which the ovary often grows, together with the style and stigma; 3, a young ovary; 4, a ripe pod; 5, a seed; 6, an embryo extracted from the integuments of the seed.

BIGORRE, a district of the south of France, one of the component parts of the former province of Gascogne or

Gascony. It was bounded on the W. by Béarn, and on the N. and E. by different districts of Armagnac, viz. on the N. by Le Pays de Rivière Basse, on the N. E. by Estarac or Astarac, and on the E. by Le Pays de Nebouzan and Le Pays des Quatre Vallées. On the south it was bounded by Spain, the Pyrenees serving to mark the frontier line.

The country of Bigorre is included in the basin of the Adour, which takes its rise in the valley of Campan in the southern part of the district, and flows northward through it. Its length from N. by E. to S. by W. is about sixty miles, and its greatest breadth nearly thirty. (Map of France in provinces by *the Society for the diffusion of Useful Knowledge.*) This country is very mountainous, especially in the southern parts; and some of the loftiest summits of the Pyrenees are either within its frontier, or very little removed from it. It is watered by the Adour and its tributaries, but these are not navigable within its borders. For an account of its climate, soil, and productions we refer to PYRE'NE'ES (HAUTES), DEP. OF, within the limits of which Bigorre is now included.

The chief towns were—Tarbes, the capital, on the Adour, (pop. 9706;) Vic-de-Bigorre (pop. 3599 for the town, 3679 for the whole commune;) Lourdes (pop. 3161 for the town, 3818 for the whole commune;) Bagnères (pop. 5633 for the town, 7586 for the whole commune:) Barège, St. Sever de Rustan, Jornac, &c. The whole district was divided into three parts, Les Montagnes (the mountains), La Plaine (the plain), and Le Rustan. 'Les Montagnes' were subdivided into the vallées d'Azun, de Barège, de Campan, and de Lavedan.

In the time of Julius Cæsar the country of Bigorre was occupied by the Bigerrones, a people or tribe of the Aquitani, from whom it has derived its name. They submitted to Crassus, the lieutenant of Cæsar, when he attacked the Aquitani. Pliny, who mentions them, gives them the name of Begerri; but they are not noticed by Ptolemy and the other geographers. Their capital was Turba, afterwards Tarvia and Tarba (now Tarbes), called also Castrum Bigorra. There were other tribes, who were included partly or wholly within the district of Bigorre; as the Tornates (people of Tournay, a town in Estarac, just on the border of Bigorre) and the Camponi, who probably resided in and have given name to the Vallée de Campan. These tribes of course shared the fate of their countrymen in becoming subject to the Romans; and in the Roman subdivision of Gaul their country was included in the province of Novempopulania. In the fifth century, upon the downfall of the Western Empire, Bigorre passed with the neighbouring districts under the yoke of the Visigoths: and early in the sixth century it was acquired by the Franks under Clovis, who had defeated and killed Alaric, king of the Visigoths. During the troubles which marked the period of the Merovingian kings, successors of Clovis, the Gascons began to extend themselves over the south-western parts of France, and their leaders were created dukes of Aquitaine, and acquired possession of Bigorre. In the earlier part of the ninth century Louis le Debonnaire, successor of Charlemagne, erected Bigorre into a county in favour of a son of the duke of Gascogne. This count and his posterity held the sovereignty of the district as feudal subjects of the king of France for about four hundred and seventy years. In the latter part of the 13th century the country was sequestered and put into the hands of Philip IV. (Le Bel) king of France: but in 1389 it was restored by Charles VI. to a descendant of the former counts; and having been by the marriage of the possessors or by other means united to Béarn and Foix, it became part of the patrimony of Henry IV., by whom it was united to the crown of France.

BIHAR (Hungar. *Bihar Barmegye*), a county of Upper Hungary, in the province 'Beyond the Theiss,' is bounded on the east by Transsylvania. It lies between 46° 28′ and 47° 40′ N. lat., and 21° 10′ and 22° 55′ E. long., and contains an area of about 4207 square miles, more than twice the surface of the county of Northumberland. This populous district of Hungary is in many parts intersected by swamps and forests. In the east it is encircled by the Carpathians, of which the Biharyzegy and Csaf are here the most elevated points, and is full of forests, but in the west the surface is a level, covered with swamps in many quarters, and for an extent of several square miles around Komàdi, occupied by the great Sar Retje, a morass formed by the overflowing of the Berettyò and Körös rivers. In this part of Bihar are a number of eminences, from thirty to forty feet in height, which some assert to be watch-hills of artificial construction, raised in remote ages. The principal rivers in the county are the Black Körös, the Rapid Körös, and the Berettyò, which pour down from the mountainous districts into the plain country, and being unimpeded by any barrier on either bank, overflow the adjacent lands, and give rise to the numerous and extensive morasses for which Bihar is distinguished. In this way the Rapid Körös alone has, during the last half century, laid above 109,000 acres under water, and not only have whole tracts been made desolate, but the atmosphere round them has been rendered unhealthy. As you approach the mountain-regions the air becomes pure and salubrious. In the Vale of Korotsh, which extends over an area thirty-seven miles in length and eighteen in breadth, the climate is so genial, that few parts of Hungary are superior to it in cultivation and productiveness. On the whole, however, Bihar is accounted one of the most fertile counties in the kingdom: it contains 2,160,834 acres of available soil, of which 1,095,120 are under the plough, and 71,078 are laid out in vineyards; and it raises grain of all kinds in superabundance, particularly wheat of very superior quality. Vegetables and fruit are of luxuriant growth: the principal wines are white, and some of them are much esteemed. To these must be added large crops of tobacco. Timber abounds in the mountainous parts of the county, but fuel is so scarce in the low lands, that reeds, straw, and dried dung supply its place. Indian corn, hemp, flax, and saffron are among the other vegetable products of this county. It is rich in minerals also: gold-dust, with pieces sometimes as large as a filbert, is obtained from the Black Körös, near Vaskoll in particular; Rézbánya produces annually about 1000 marks of silver; of copper about 840 cwt. are yearly raised, and of lead about 25 tons; much iron ore and many iron-works are found in the neighbourhood of Vaskoll and Grosvardein; and the road from Barod into Transsylvania leads over a continued bed of marble for a distance of nine miles and more. Bihar also produces alabaster, chalk, and limestone, potter's clay, porcelain earth, fire stone, granite, petrified carbon or jet, which takes a brilliant polish, coals (near Derna and Feketeto), naphtha, mineral alkalis, saltpetre, and excellent mineral waters, of which those near Grosvardein are much esteemed. The rearing of domestic animals, among which horses, horned cattle, and swine are the chief, is carried to a considerable extent; and game and fish are plentiful. The population of Bihar is estimated at about 445,000 souls, giving an average of nearly 106 per square mile; of these the proportion of Protestants to Roman Catholics is about 150 to 35, and of Protestants to Greeks about 150 to 138. There is no part of the country where agriculture is not followed almost to the exclusion of the arts and manufactures excepting Debreczin and Grosvardein, which are places of considerable trade. Bihar contains one royal free town, Debreczin, the largest town in Hungary after Pesth, with upwards of 40,000 inhabitants; the antient episcopal city of Grosvardein, or Nagy Barad, on the Sedes-Körös, or Rapid Körös, with about 16,000 inhabitants; 21 market-towns, 460 villages, and 170 prædia. It is divided into the five circles of Sarete, Szalonta, Belenye, Vardein, and Ermelye.

BIJA GANITA. [See VICA GANITA.]

BIJANAGHUR, or BISNAGHUR (*Vijayanagara*, signifying, in Sanscrit, the triumphal fortress), sometimes called Annagoondey, was once a Hindu city of great importance, but is now nearly uninhabited and little more than a heap of ruins. It stands on both sides of the river Toombuddra, in 15° 14′ N. lat., and 76° 37′ E. long. The name of Annagoondey is more generally applied to that part of the city which occupies the north-west bank of the river, while the part on the opposite side retains usually the name of Bijanaghur. The Toombuddra at this spot is about 800 yards wide, and rapid in its course: its bed is occupied by many granite rocks. The river contracts greatly at one point between the two parts of the city, and here there was formerly a stone bridge, which is in ruins, and the communication is now kept up by means of a ferry.

The city stands in a plain, which is surrounded by enormous masses of granite, some of which take the form and magnitude of hills. In the plain there are likewise large blocks of granite, many of which have not been removed when building the city, the course of the streets being in many parts made winding in order to avoid the stones.

The principal streets are paved with flags of granite, and this stone has been very generally used in constructing arches, and aqueducts, making pillars, and even for the flat roofs and rafters of houses. The remains of numerous temples, choultries (houses of accommodation for travellers), and many other public and private buildings, exhibit the purest style of Hindu architecture. Some blocks of granite which have been used in the construction of these edifices are from twelve to fifteen feet square; they are cut and fitted to each other with great nicety, and considering the want of mechanical skill among the builders, they testify in a high degree to their industry and perseverance.

The part of the city which is situated on the south-east bank of the Toombuddra is, except where bounded by the river, inclosed with strong stone-walls, or by barriers planted by the hand of nature. The circuit of this part of the city is eight miles, but in consequence of the interruptions occasioned by the masses of rock already mentioned, a great part of the inclosed area contains no buildings. Near the western extremity, and terminating a street ninety feet wide, running parallel with the Toombuddra, is a magnificent temple dedicated to Mahadêva (the great god). This temple is surrounded by numerous cells for devotees; facing to the east is a pyramidal portico about 150 feet high, and divided into ten stories. The attendant Brahmins are numerous, and the establishment is well endowed. The street which leads to this temple is chiefly appropriated to the use of the numerous pilgrims who visit it at the time of the annual festival. Another temple near the centre of the city is dedicated to Wittoba (an incarnation of Vishnu). This establishment consists of a group of buildings comprehending, besides the principal place of worship, four choultries and many smaller pagodas, the whole occupying an area of about 400 by 200 feet, and surrounded by numerous cells. The granite columns which support the roof of the chief temple have numerous figures of lions clustered round them, and the entablature is ornamented, as well as the ceiling, with various sculptures. On holidays, the image of the god Wittoba is exposed in a chariot, constructed, wheels and all, of granite: this chariot is elaborately and delicately finished. The division on the north-west bank of the river is uninhabited, with the exception of a small village built near the centre with stones collected from the surrounding ruins. A temple dedicated to Krishna, situated near this spot, is kept in repair, and still used for the performance of religious rites.

The city of Bijanaghur was built between the years 1336 and 1343, by two brothers named Aka Hurryhur and Bucca Hurryhur, who ruled here in succession, Aka until 1350, and Bucca until 1378. The rajahs of Bijanaghur were constantly involved in war with the Mohammedan rulers of the Deccan, and at length, in 1564, the sovereigns of Ahmednuggur, Beeder, Golconda, and Bejapore combined together, and routed the forces of Ram Raja, the rajah of Bijanaghur, on the plains of Tellicotta. The conquerors afterwards advanced upon the capital, which they took, and completely sacked, so that it was deserted by nearly all its inhabitants.

BIJNEE, a principality beyond the limits of Northern Hindustan, situated on both sides of the Brahmapootra river, and bordering on Asam to the east, Bootan to the north, Rungpore to the west, and the Garrows on the south.

Part of the lands of Bijnee are situated within the limits of British jurisdiction, and a part consists of territory said to be independent, but which is subject to an insignificant tribute paid to the rajah of Bootan. The division north of the Brahmapootra is called Khungtaghaut, which name is sometimes applied to the whole principality, and that south of the great river is called Howeraghaut.

This extensive country possesses much natural beauty, and contains a great proportion of fertile land, but the level country is subject to inundation, and the government is very badly administered. The inhabitants are sunk in poverty, and the land is consequently ill cultivated. Owing to the unsettled state of the country, and of some of the neighbouring states, many of the cultivators do not establish themselves in any fixed place, but always hold themselves in readiness to withdraw, as circumstances may require, into the English territory, Bootan, or Asam. Rice is the principal vegetable production. The soil is adapted for wheat, barley, pulse, sugar-cane, and mulberry trees, but no silk-worms, and but little of the other kinds of productions here named are cultivated. It is customary for many of the natives of Bijnee to bring their wives and families for safety within that part of the principality which is under British protection, while they themselves pursue their labours in other districts more liable to disturbance.

The authority of the British over part of Bijnee is derived from its connexion with the Mogul emperor, to whose rights the East India Company has succeeded. Previous to 1785 the tribute had been paid in a certain number of elephants, which were unprofitable to the Company's government, and, at the date just mentioned, the collector at Rungpore commuted this tribute into an annual money payment of 2000 rupees.

In 1791 Havindra Narrain, the rajah of Bijnee, was assassinated, and the rajah of Bootan took upon himself to nominate as his successor Mahindra Narrain, a relative of the murdered chief. To this nomination the Bengal government assented, not because of any right of nomination in the rajah of Bootan, but because the pretensions of Mahindra to the succession were well founded. The revenue of the rajah is estimated at 162,000 rupees, but full one-half of the rents are paid in coarse cotton cloths, woven by the females of the country, and a considerable loss is sustained upon the sale of these fabrics.

Bijnee, the capital of the principality, is situated in 26° 29′ N. lat., 90° 48′ E. long. The town is surrounded by a brick wall, built in the form of a parallelogram. Beyond this wall is a ditch, on the outside of which is a strong hedge of prickly bamboo. Each side of the wall contains a gate, but when the latest account of the place was obtained, neither of these gates was provided with doors that could be shut. Besides the fort, which is built of brick, in which the rajah lives with his retinue, including fifty male and seventy female slaves, the town contains a few small brick temples, without any attempt at magnificence; the remainder of the buildings are nothing better than thatched huts. This town is considered as a sort of neutral ground. To the English the rajah represents that it is subject to Bootan, while the rajah of Bhootan is told that it is English property, and it is not considered an object of sufficient importance by either party to risk any misunderstanding on account of it.

BIJORE, a subdivision of Sewad, an Afghan district in the province of Cabul. This district is described as an undulating plain, about 25 miles long from E. to W., and only 12 miles broad from N. to S. The soil is fertile, and produces good crops of wheat. The towns of Bijore, the capital, and Mawagye, each contain about 1000 houses. The principal part of the inhabitants are Afghans, but there are also many settlers from Caffristan. The town of Bijore is in 34° 47′ N. lat., 71° 14′ E. long.

It was long traditionally held that this district had once been inhabited by a tribe who were descendants from the companions of Alexander the Great. It was said that these inhabitants were remarkable for their personal beauty and European complexions, their worshipping of idols, and drinking of intoxicating liquors, besides the circumstance of their language being different from that of any surrounding tribe. The Emperor Baber, in his memoirs, written in the beginning of the sixteenth century, tells us, that as the men of Bijore were rebels to Islam, he put them all to the sword, and sold their wives and children into captivity. The recent investigations of Mr. Elphinstone do not tend to confirm the tradition as to the Grecian origin of the antient inhabitants of the district.

BILBA'O, a city in Spain, the capital of the lordship of Biscaya. It is situated in a spacious and fertile plain on the east or right bank of the river Nerva or Nervion, called by the inhabitants Ibaizabal, nine miles E.S.E. of Portugalete, 43° 15′ N. lat. 2° 56′ W. long. The plain of Bilbao is surrounded by high mountains, from which numerous torrents descend in the rainy season. This circumstance formerly exposed the town to frequent inundations; but the inconvenience has been of late avoided by widening the canal, and constructing dams and other works. The plain is very well cultivated and covered with numerous neat country houses. The chief produce of the land is Indian corn, chacoli or wine, chestnuts, fruits and grass. The bullocks and sheep which are fed in the pastures near the coast furnish a very juicy, tender, and well-flavoured meat; the game is excellent, particularly a bird of passage called chimbo, and the fish, both of the river and sea, are very delicate.

Bilbao contains four parishes, five convents of nuns, two of monks, an hospital, and about 800 houses, substantially built, generally three stories high. The hospital is a magnificent stone building, containing 600 beds, a chapel, and an apothecary's hall, with a competent number of officers in every department. The sick are visited twice a-day by [illegible] icians and two surgeons of the town. A com- [illegible] respectable citizens superintend the whole. The hospital has been built and is supported by voluntary contributions, and every poor invalid of Bilbao has admittance into it cost-free.

There is also a Casa de Misericordia, or charity-house, supported by voluntary contributions, and superintended by a committee of respectable individuals, to provide with food, clothing, shelter, and instruction foundlings and orphans, or otherwise destitute children. There is a manufactory of common earthenware connected with the establishment in which the children work. They are besides instructed, at the expense of the house, in some business which may be the means of procuring them an honest livelihood. The streets are all well paved with square flat stones on both sides, and with small round stones in the middle. No carriage of any sort is allowed in them, by which means the pavement is much longer kept in repair. The water of the river is conducted through pipes to the most elevated part of the different streets, from which it flows through them in abundance, washing away all the dirt, which it carries to the river. The market-place, situated at the eastern extremity of the town, is always abundantly supplied. The slaughter-house, where the meat is also sold, is a fine building of the Tuscan order situated in the middle of the town. Possessing an abundant supply of water from a fountain constantly flowing, and being open on all sides so as to permit a free current of air, there is nothing in it to offend either the sight or the smell. On the right bank of the river there is a wide and pleasant promenade planted with lime-trees and oak, and lined with many houses, gardens, and warehouses. Numerous wharfs and strong moles are built on both banks at different places down the river to Portugalete; there are two bridges over the river at Bilbao, one very old of two arches built of stone, and another of wood of modern construction very solid and handsome, with one arch. The tide ascends as high as the town, but only small vessels under sixty or seventy tons can sail so far up the river, except with a very full tide; the greatest part of them remain at Olaveaga, two short miles from the town.

Bilbao is the seat of the government of the province (see **Basque**, **Bizcaya**) and of the consulado, or tribunal of commerce. That body has endowed schools for the gratuitous instruction of the youth of the town in architecture, mathematics, navigation, drawing, and the French and English languages. There is also a school where poor children are instructed gratuitously in reading and writing, and another for teaching the Latin language, both supported by the ayuntamiento, or common council.

The people of Bilbao are kind and hospitable; their society is pleasing and easily accessible to strangers. The women of the lower class, who are employed as carriers and in other manly occupations, are so robust that they may be frequently seen after a day of laborious employment dancing as cheerfully as on a holiday. They are clean and neatly dressed, and in general go barefooted. To gratify the inclination of the common people for dancing, the town pays three men, who play on the tambourine and the provincial wind instruments at the public dances. There is a public building for playing at ball and two for tennis, of both which exercises the people are exceedingly fond. There are five very pleasant fountains, a capacious and handsome playhouse, several coffee-houses, and many shops and warehouses, abundantly supplied with all articles of foreign merchandise, which, owing to the moderate duties and the intelligence of the people in mercantile concerns, may be obtained as cheap as in the countries where they are manufactured. The population of Bilbao is 15,000. The inhabitants are employed in agriculture, commerce, and the manufacturing of iron. The most productive iron mines in Spain, and perhaps in the world, are those called Veneras, five miles from Bilbao. They produce, in general, thirty-three per cent. without straining the ore. There are also manufactures of paper, hats, soap, leather, earthenware, and cigars. The principal articles of exportation are wool and wheat to foreign countries, and iron to other parts of the Peninsula. (See *Diccionario Geographico Historico*; *Diccionario de la Academia*).

BILBERRY, a kind of berry-bearing shrub, found on the moors of this country. [See **Vaccinium**.]

BILBILIS, a Celtiberian town, in Hispania Tarraconensis, situated on a branch of the Iberus (Ebro), which is sometimes called by the same name as the town, more frequently, however, mentioned by the name Salo (Martial. x. 103, 104.) Its site is supposed to correspond with that of the modern Calatayud, which stands near the junction of the Xiloca with the Xalon. It was built upon an eminence, according to Martial, in the two epigrams above quoted (quos Bilbilis acri monte creat—altam Bilbilim), and i. 49. The steel manufactories at this place were celebrated in antient times (Plin. *N. H.* xxxiv. 14; Justin. xliv. 3.; Martial. iv. 55.); but it is known to us principally as having been the birth-place of M. Valerius Martialis Coquus, the great epigrammatist. It was a municipal town, as appears from coins of Tiberius, inscribed M. AUGUSTA BILBILIS TI. CAES. III., and M. AUGUSTA BILBILIS TI. CAES. V. L. AELIO SEIANO. About twenty-four Roman miles up the Salo were the Aquæ Bilbilitanæ ægrotantibus salutares, 'the medicinal springs of Bilbilis,' mentioned in the Itinerary of Antoninus.

[Copper, with head of Augustus, Brit. Mus.]

[Coin of Bilbilis, copper, Brit. Mus.]

BILE, an animal fluid of a greenish colour, bitter taste, and viscid consistence. It is sometimes found as a limpid and at other times as a turbid fluid. It is a very compound substance, being composed of water, albumen, a peculiar resinous principle, a portion of yellow colouring matter, and several salts. The principle, however, upon which its distinctive characters essentially depend is the resinous, and the bile is therefore classed by physiologists among the resinous secretions. According to Thenard, the composition of the bile is as follows:—

Ox bile.

Water	700·
Picromel and resin	84·3
Yellow matter	4·5
Soda	4·
Phosphate of soda	2·
Muriate of ditto	3·2
Sulphate of ditto	0·8
Phosphate of lime	1·2
Oxide of iron	a trace.
	800·0

Human bile.

Water	1000·
Yellow insoluble matter	2· to 10·
Albumen	42·
Resin	41·
Soda	5·6
Salts the same as in ox bile	4·5

According to Berzelius, the following is the composition of human bile:—

Water	908·4
Picromel	80·
Albumen	3·
Soda	4·1
Phosphate of lime	0·1
Common salt	3·4
Phosphate of soda with some lime	1·0
	1000·0

The organ by which the bile is secreted is the liver. The liver is distinguished by two peculiarities: first, it is the largest gland in the body; and secondly, it is provided with two distinct sets of veins. The veins that receive the blood from the viscera of the abdomen, that is, from the organs more immediately concerned in the process of digestion, unite together into a large trunk named the vena portæ. This vein penetrates into the substance of the liver and ramifies through it in the manner of an artery; at the same time the liver receives a large quantity of arterial blood by the hepatic artery. The ultimate branches of the vena portæ terminate partly in a set of vessels termed the hepatic ducts, which contain the bile, and partly in a set of vessels termed the hepatic veins, by which a large portion of the blood of the vena portæ is transmitted by the ordinary course of the circulation into the vena cava, the great vein that returns the blood from all parts of the body to the right side of the heart. [See CIRCULATION.]

This arrangement is peculiar. There is no other gland in the body in which the disposition of the blood-vessels is at all analogous: there is no other instance in which a vein is sent to a gland and distributed to it in the manner of an artery. This peculiarity has naturally led physiologists to infer that the vein, in this case, performs the ordinary function of an artery; that it carries on the process of secretion, and eliminates its product, the bile, out of venous blood. And this inference is strengthened by the following considerations:—

1. A large portion of the ultimate branches of the vena portæ terminate, as has been stated, in the hepatic ducts, that is, the excretory ducts of the gland, or the tubes provided for carrying away the secreted fluid after its elaboration.

2. The elements of which the bile is composed abound more in the blood of the vena portæ than in that of the hepatic artery. The chief constituent elements of the bile are hydrogen and carbon. These two elements always abound more in venous than in arterial blood, the venous blood acquiring them as it flows slowly along the course of the circulation, and acquiring them the more abundantly the slower the stream and the longer its course.

3. The distinctive character of every secreting organ is that it receives a copious supply of blood-vessels and nerves. Accordingly the ramifications of the vena portæ receive a much greater supply of arterial capillaries from the hepatic artery than is observed with respect to any other vein in the body, and a correspondingly greater supply of ganglial or organic nerves than venous capillaries in general; these nerves being, as will be shown hereafter, the source whence the blood-vessels derive their vital endowments, and are capable of producing those complicated changes which the blood undergoes during the process of secretion.

These considerations go far to show that the secretion of the bile is an anomaly in the animal economy, inasmuch as it is elaborated by a vein out of venous blood; but there are many eminent physiologists to whose minds they do not appear of sufficient weight to warrant this conclusion. Bichat, for instance, contends, and adduces plausible arguments in favour of the opinion, that the bile is secreted from the hepatic artery; and Magendie conceives that it is formed at one and the same time from the blood both of the vena portæ and of the hepatic artery. It is certain that cases are on record in which the vena portæ is said to have united directly with the vena cava without going to the liver at all; and that, in such cases, the secretion of bile went on just as well as when the vena portæ is distributed in the ordinary mode. One such case, clearly made out, would afford a demonstration that bile is *capable* of being secreted by the hepatic artery.

But whatever doubt physiologists may entertain by which of the two great vessels of the liver the bile is secreted, the consent is universal that the liver is the gland by which this fluid is formed. When duly elaborated in this organ, the bile is received from the secreting vessels by exceedingly minute tubes, the union of which constitutes the excretory duct of the gland, which is termed the hepatic duct. The hepatic duct passing on towards the duodenum, which, physiologically considered, is a second stomach [see DUODENUM], communicates with a small membranous cyst or bag, called the gall bladder, a reservoir for the bile. The duct of the gall-bladder, called the cystic duct, unites with the hepatic duct, and both together form a single tube, termed the choledoch duct, which pierces the duodenum. Thus the hepatic duct, carrying the bile away from the liver, either conveys it into the gall bladder by means of the cystic duct, or transmits it immediately into the duodenum by means of the choledoch duct. The bile which flows immediately into the duodenum is called the hepatic bile; that which is contained in the gall bladder is called the cystic bile. There is a striking difference in the external characters of the two, cystic bile being of a much deeper colour, and much more viscid, pungent, and bitter than hepatic bile; but the difference in their chemical properties, if there be any, has not been ascertained: hepatic bile, on account of the difficulty of collecting it in sufficient quantity, has not been analysed, while some portion of bile is generally found in the gall-bladder after death. Some physiologists, indeed, are of opinion that the gall bladder is not passive in the reception of the bile; that it is not a mere receptacle for this fluid; that the cystic duct acts as an absorbent, actually selecting from the bile, as it is flowing in the hepatic duct, its more active ingredients, which are conveyed into the gall bladder, and retained there until needed; but it is more probable that the blander portions of the bile are absorbed during its retention in the gall bladder, and that while it remains there its elements re-act upon each other so as somewhat to modify the character of the secretion, rendering it more viscid, pungent, and bitter than the recently secreted fluid.

From actual experiment it would appear that the secretion of bile is continually going on in the living system. In whatever circumstances an animal is placed—if the orifice of the choledoch duct be laid bare—the bile is always seen to be flowing drop by drop into the intestine. It is observed to flow much faster during the process of digestion than when the stomach is empty; and there is reason to believe that, during the digestive process, the hepatic bile is secreted in much larger quantity than when the stomach is empty, and that it is then conveyed directly into the duodenum. The gall-bladder fills when the stomach is empty, and when the stomach is full the gall bladder becomes comparatively empty. The gall-bladder, however, is seldom if ever completely emptied. Vomiting contributes more perhaps than any other action of the system to the expulsion of its contents. Magendie states that he has often found it completely empty in animals that died from the effects of an emetic poison.

The use which the bile serves in the economy is to produce a specific change upon the aliment, in a certain stage of the digestive process. The first change which the food undergoes after it has been swallowed is the reduction of it by the stomach into a fluid mass, the appearance of which varies considerably according to the nature of the food. This fluid mass is termed chyme, which when accumulated in a certain quantity is sent from the stomach into the duodenum. In the duodenum the food undergoes a further change, and is converted from chyme into the substance called chyle. These two fluids are distinguished from each other by specific characters. [See DIGESTION.] The bile is the main agent in producing the change by which chyme is converted into chyle. This is proved by a decisive experiment performed by Sir B. Brodie.

This physiologist applied a ligature around the choledoch duct of an animal, so as completely to prevent the bile from entering the duodenum, and then noted the effects produced on the digestion of the food immediately before or immediately after the operation. The experiment was repeated several times, and the result was uniform. The production of the chyme in the stomach took place as usual, but the conversion of the chyme into chyle was immediately and completely interrupted. Not the smallest trace of chyle was perceptible either in the duodenum, or in the vessels which take up the chyle when formed, namely, the lacteals. This experiment is decisive as to the proper office of the bile, which is to separate the nutritious from the non-nutrient or excrementitious part of the chyme, and thus to form chyle. In effecting this separation the bile itself is divided into two parts; its coloured and bitter portion passes on along with the excrementitious part of the chyme into the large intestines, while its albuminous and saline part combines with the chyle, is absorbed with it by the lacteals, and is thus carried with it into the circulation. The coloured and bitter portion of the bile which combines with the excrementitious part of the chyme, and which, together with certain secretions from the mucous surface of the alimentary canal, constitute the fæces, imparts to the fæculent matter a stimulating property, which is necessary to excite the action of the large intestines, the office of which is to expel from the system the excrementitious portion of the aliment. This excrementitious part of the bile may therefore be considered as constituting a natural purge, formed in the canal itself, which it is to stimulate to the act of expulsion. And accordingly when the secretion of the liver is scanty, and the bile does not flow in sufficient quantity into the duodenum, one consequence uniformly is, that the fæces are without their proper colour, and destitute of their natural stimulating quality; whence the due action of the large intestines does not take place, and constipation and a long and varied train of evils in the general system follow.

Such are the nature and office of the bile, the very important secretion elaborated by the liver. But the liver is an organ of enormous bulk, and receives an immense quantity of blood; the term 'enormous' being used in comparison with the size of other glands, and the term 'immense' in comparison with the quantity of bile secreted. Moreover, the liver is found in animals exceedingly low in the scale of organization, and even in these it is often of very great magnitude. Hence it is conceived that the secretion of bile is by no means the sole function performed by the liver. Many physiologists look upon it as a supplementary organ of the lungs, assisting that organ in the depuration of the blood, and, like it, eliminating from the blood its superfluous hydrogen and carbon. 'When the venous blood becomes loaded with inflammable matter (hydrogen and carbon) which cannot be discharged from the lungs, and when, from certain causes, one of which appears to be the increase of cutaneous perspiration, this excess of inflammable matter is not employed in the deposition of fat, the liver would appear to be the organ by which it is removed. In ordinary cases the quantity discharged is small, probably no more than is sufficient to preserve the liver in its healthy state, and to perform the secondary objects to which the function is subservient; but when, from a conjunction of circumstances, there is an excess of inflammable matter, its accumulation is prevented by an increased discharge of bile.' (Bostock's *Elements of Physiology*, vol. i. p. 370.)

Upon the whole there is reason to believe that the changes which the blood undergoes in the liver are threefold. 1. Materials more or less heterogeneous and crude, absorbed by the vena portæ, and coming chiefly from the organs of digestion, undergo, while circulating through this viscus, a process of animalization, by which the blood is better fitted for carrying on the general functions of the system. 2. Certain constituents of the blood, either noxious in their own nature, or injurious by the excess in which they accumulate, are here separated from the common mass of blood, and carried out of the system. 3. By the preceding changes, the blood circulating through the liver is specially fitted for the production of a peculiar secretion, which performs a specific office in the process of digestion.

This multiplicity of offices performed by one and the same organ is in conformity with the usual operations of the animal economy, in which, while provision is made to accomplish some purpose of primary importance by an organ, the same apparatus, or the product resulting from its action, secures some further secondary use in the system. (See Liver, and for a more detailed account of the nature, source, and office of the bile, consult Bostock's *Elements of Physiology*; Richerand's *Elements of Physiology, with Notes by* Dr. James Copland; and Magendie, *Précis Elémentaire de Physiologie.*)

BILEDULGORID. [See Beled.]

BILIMBI, or BLIMBING, the Malayan name of a species of acid fruit belonging to a genus called Averrhoa. It is chiefly used in pickles.

BILIN, one of the possessions of the princes of Lobkovitz, in the most north-west part of Bohemia, close to the Ore and Middle Mountains, is about 168 square miles in superficial extent, with about 8000 inhabitants. The principal spot in this district is Bilin or Bylina, a small town of about 2500 souls, lying on the little river Bila, embosomed in a deep valley, and distant about three miles from the baths of Teplitz; it has a cotton-yarn manufactory, a handsome church, and a new as well as an antient castle, the one containing a collection of minerals, &c., and the other a laboratory, in which artificial waters, salts, and magnesia are prepared. The environs are remarkable for a precipitous mountain, called the Bilinerstein, which is surrounded by basalt rocks; but the place itself is most celebrated for its springs, which are of two qualities, acidulous and bitter. The main spring, an acidulous water, yields 2381 quarts per hour, of the heat of 12° Reaumur (58° Fahrenheit): it is much resorted to in cases of spleen, indigestion, scrofula, gout, &c., and above 60,000 quarts of it are annually sent to foreign parts. The Bilinerstein affords a number of rare plants, as well as minerals.

BILL IN CHANCERY. [See Equity.]

BILL IN PARLIAMENT, is the name given to any proposition introduced into either house for the purpose of being passed into a law, after which it is called an act of parliament, or statute of the realm. [See Statute.]

In modern times a bill does not differ in form from an act, except that when first brought in it often presents blanks for dates, sums of money, &c., which are filled up in its passage through the house. When printed, also, which (with the exception only of naturalization and name bills, which are not printed) it is always ordered to be, either immediately after it has been read a first time, or at some other early stage of its progress, a portion of it, which may admit of being disjoined from the rest, is sometimes distinguished by a different type. But most bills are several times printed in their passage through the two houses. A bill, like an act, has its title, its preamble, usually setting forth the reasons upon which it professes to be founded, and then its series of enacting clauses, the first beginning with the words—'Be it enacted by the King's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same;' and each of those that follow with the more simple formula—'And be it further enacted.' The advantage of this is that a bill when made perfect by all its blanks having been filled up, becomes a law at once, without further alteration or remodelling, on receiving the royal assent.

Originally, the bills passed by the two houses were introduced in the form of petitions, and retained that form when they came to receive the royal assent. The whole of those passed in one session were then, after the parliament rose, submitted to the judges, to be by them put into the proper shape of a law. But it was found that in undergoing this process the acts, as passed by the parliament, were frequently both added to and mutilated. Indeed a great deal of the power of making the law was thus left in the hands of the judges, and of the royal authority, in so far as these learned personages might be under its influence. To remedy this evil it was arranged in the reign of Henry V., that the statute roll of the session should always be drawn up before the parliament rose. In the following reign, that of Henry VI., the bill came as now to be prepared in the form of an act.

Bills are either public or private. In the introduction of a public bill the first motion made in the House of Lords is that the bill be brought in; but in the House of Commons the member who purposes to introduce the bill must first move that leave be given to bring it in. If that motion is carried, the bill is then either ordered to be brought in by certain members, generally not more than two, of whom the mover is one, or a select committee is appointed for that purpose. When the bill is ready, which it frequently is as soon as the motion for leave to bring it in has been agreed to, it is presented at the bar by one of those members, and afterwards, upon an intimation from the speaker, brought up by him to the table. The next motion is that it be read a first time; and this motion is most frequently made immediately after the bill has been brought up. This being carried, a day is appointed for considering the question that the bill be read a second time. The second reading being carried, it is next moved that the bill be committed, that is, that it be considered clause by clause either in a committee of the whole house, or, if the matter be of less importance, in a select committee. When the committee have finished their labours they make their report through their chairman; and the next motion is that the report be received. Besides modifying the original clauses of the bill, it is in the power of the committee, if they think proper, both to omit certain clauses, and to add others. Sometimes a bill is ordered to be re-committed, that it may undergo further consideration, or that additional alterations may be made in it. The report of the committee having been received, the next motion is that the bill be read a third time, and when that is carried, there is still a further motion, that the bill do pass.

When a bill has passed the House of Lords, it is sent down to the House of Commons usually by two of the masters in chancery, and sometimes, in the case of measures of great importance, by one or more of the judges, who make three obeisances as they advance to the speaker, and, after one of them has read the title of the bill, deliver it to him, desiring that it may be taken into consideration. When a bill, on the other hand, is sent up from the Commons to the Lords, it is sent by several members (the speaker being frequently one), who, having knocked at the door of the Lords' house, are introduced by the usher of the black rod, and then advance to the bar, making three obeisances. The speaker of the house, who is usually the lord chancellor, then comes down to the bar, and receives the bill, the member who delivers it to him stating its title, and informing him that it is a bill which the Commons have passed, and to which they desire the concurrence of their lordships. A bill thus received by the one house from the other is almost always read at least a first time; but it does not appear to be a matter of course that it should be so read. It then goes again through the same stages as it has already passed through in the other house.

The bill may be debated on any one of the motions which we have mentioned, and it commonly is so debated more than once. It is usual, however, to take the debate upon the principle of the proposed measure either on the motion for leave to bring in the bill, or on that for the second reading; the details are generally discussed in the committee. Amendments upon the bill, going either to its entire rejection, or to its alteration to any extent, may be proposed on any occasion on which it is debated after it has been brought in. Before it is committed also certain instructions to the committee may be moved, upon which the committee must act.

After the report of the committee has been received, and the amendments which it proposes agreed to, the speaker puts the question that the bill so amended be engrossed; that is to say, written in a distinct and strong hand on parchment. In this shape it remains till it receives the royal assent; it is not engrossed a second time in the other house. Whatever clauses are afterwards added to it are called *riders*, and must be engrossed on separate sheets of parchment and attached to it.

Bills of all kinds may originate in either house, except what are called money bills, that is, bills for raising money by any species of taxation, which must always be brought first into the House of Commons. The Commons also will reject any amendment made upon a money bill by the Lords. And the Lords have a standing order (the XC., dated 2nd March, 1664) against proceeding with any bill for restitution in blood which shall not have originated in their own House: all such acts, and all others of royal grace and favour to individuals, are signed by the king before being laid before parliament, where they are only read once in each house; and cannot be amended, although they may be rejected. [See Assent, Royal.]

When a bill has passed the Commons and is to be sent up to the Lords, the clerk writes upon it *Soit baillé aux Seigneurs;* and upon one which has passed the Lords and is to be sent down to the Commons, the clerk of the Lords writes *Soit baillé aux Communs.* If it is afterwards passed by the Commons, the clerk writes upon it *Les Communs ont assentez.* All bills of supply, after being passed by the Lords, are returned to the House of Commons, in which they had originated, and there remain till they are brought to the House of Lords by the speaker to receive the royal assent: all other bills are deposited with the Lords till the royal assent is given to them.

A bill, after it has been introduced, may be lost either by the royal assent being refused (of which, however, there is no instance in recent times), or by a motion for its rejection being carried in any of its stages in its passage through either house, or by any of the motions necessary to advance it on its progress being dropped or withdrawn. The rejection of the bill may be effected by the motion in its favour being simply negatived, or by a counter-motion being carried to the effect that the next reading be deferred till a day by which it is known that parliament will have been prorogued (generally till that day six months, or that day three months), or by the carrying of an amendment entirely opposed to the measure. The motion for carrying it forward on any of its stages may be dropped either by the House not assembling on the day for which the order made respecting that motion stands, or simply by no member appearing to make the motion. When a motion has once been made, it can only be withdrawn by consent of the House.

If a bill has been lost in any of these ways, the rule is that the same measure cannot be again brought forward the same session. 'It however appears,' says Mr. Hatsell, in treating of this subject in his *Precedents*, 'from several of the cases under this title, as well as from every day's practice, that this rule is not to be so strictly and verbally observed as to stop the proceedings of the House: it is rather to be kept in substance than in words; and the good sense of the House must decide, upon every question, how far it comes within the meaning of the rule.' In fact there are several remarkable examples of the regulation being entirely disregarded. And sometimes a short prorogation has been made merely to allow a bill which had been defeated to be again introduced.

When a bill which has passed one house has been amended in the other, it must be returned, with the amendments, to be again considered in the house from which it had come; and it cannot be submitted for the royal assent until the amendments have been agreed to by that house. In case of a difference of opinion between the two houses, the subject is frequently ordered to be discussed in a conference. [See Amendment.]

According to the standing orders of the House of Lords (see Order CXCVIII. of 7th July, 1819), no bill regulating the conduct of any trade, altering the laws of apprenticeship, prohibiting any manufacture, or extending any patent, can be read a second time until a select committee shall have inquired into and reported upon the expediency of the proposed regulations. By the standing orders of the Commons, no bill relating to religion, or trade, can be brought into the House until the proposition shall have been first considered and agreed to in a committee of the whole house; and the house will not proceed upon any bill for granting any money, or for releasing or compounding any sum of money owing to the crown, but in a committee of the whole house. No bill also can pass the house affecting the property of the crown or the royal prerogative, without his majesty's consent having been first signified.

Private bills are such as directly relate only to the concerns of private individuals, or bodies of individuals, and not to matters of state or to the community in general. In some cases it might be doubtful whether an act ought to be considered a public or a private one; and in these cases a clause is commonly inserted at the end of the act to remove the doubt. Private bills in passing into laws go through the same stages in both houses of parliament with public bills; but relating as they do for the most part to matters as to which the public attention is not so much alive, various additional regulations are established with regard to them, for the purpose of securing to them in their progress the observation of all whose interests they may affect. No private bill, in the first place, can be introduced into either house except upon a petition stating its object and the grounds upon which it is sought. Nor can such petitions be presented after a certain day in each session, which is always fixed at the commencement of the session, and is usually within a fortnight or three weeks thereafter. In all cases the necessary documents and plans must be laid before the house before it will proceed in the matter, and it must also have evidence that sufficient notice in every respect has been given to all parties interested in the measure. To a certain extent the consent of these parties is required before the bill can be passed. For the numerous rules, however, by which these objects are sought to be secured, we must refer to the Standing Orders themselves. An account of the principal steps necessary to be taken in the case of the most important description of private bills, those for enabling associations of individuals to undertake the formation of roads, canals, and other such works, and of the progress of such bills through the two houses, may be found in the first number of the *Companion to the Newspaper*, p. 11.

An important respect in which the passage through parliament of a private bill differs from that of a public bill is the much higher amount of fees paid in the case of the former to the clerks and other officers of the two houses. Although the high amount of the fees payable on private bills has been the subject of much complaint, and is undoubtedly, in some cases, a very heavy tax, it is to be remembered that the necessary expense of carrying the generality of such bills through parliament must always be very considerable, so long as the present securities against precipitate and unfair legislation shall be insisted on. The expenses of agency, of bringing up witnesses, and the other expenses attending the making application to parliament for a private bill, at present often amount to many times as much as the fees. These fees, on the other hand, are considered to be some check upon unnecessary applications for private bills, with which it is contended that parliament would otherwise be inundated. The misfortune is, that it is not the most unnecessary applications which such a check really tends to prevent, but only the applications of parties who are poor, which may be just as proper to be attended to as those of the rich.

BILL OF EXCHANGE, a well-known mercantile instrument, of great and extensive usefulness, which may be described as a written order or request addressed by one person to another, directing the latter to pay on account of the former to some third person or his order, or to the order of the person addressing the request, a certain sum of money at a time therein specified. In commercial language, the person giving the direction is called the drawer of the bill, he to whom it is addressed the drawee, and he in whose favour it is given the payee or occasionally the remitter. Bills of exchange are ordinarily divided into two classes, foreign and inland; the former comprehend such as are drawn *or* are payable abroad, the latter those which are drawn *and* payable in England. Thus, a bill drawn in France, or even in Scotland or Ireland, upon a party in England, or conversely, is a foreign bill; and this, it is to be observed, is a distinction not merely nominal, but carrying with it important legal consequences.

At what time and by what people bills of exchange were first brought into use is a matter of history which has not been satisfactorily ascertained. The invention has been variously assigned—to the Jews and Lombards, as a mode of secretly withdrawing their effects from France and England, whence in the thirteenth century they were banished for usury—to the Florentines flying from the successful faction of the Ghibellines—and to the Mongolian conquerors of China. These, however, one and all, are conjectures resting on no solid foundation. All that can be safely affirmed is, that instruments of this kind were current among the commercial states of Italy in the early part of the fourteenth century, and that it is probable they were not unknown at the close of the same century in England. It has been commonly stated that the use of foreign bills preceded that of inland, and the statement, when confined to England, into which the practice was imported from other countries, is unquestionably true; but there seems no reason for supposing that in the original application of the invention any such distinction existed at all. The object to be attained was the facilitation of exchanges between parties resident at a distance from each other, by dispensing with the remittance of money in specie; and whether the parties were resident in different countries or in the same, the inconvenience would equally exist, and the remedy be equally applicable.

The history of bills of exchange would furnish much curious and instructive matter, as illustrative of the progress of trade, from the simple and somewhat clumsy operations of early times down to the refined and complicated system of modern exchanges. Originally, as has been said, they were employed solely as media of remittance, and the exigency which brought them into use may be explained as follows:—A., at Hamburg, consigned goods to B., in London, either in execution of an order, or as his factor for sale. B., thereupon, being debtor to A. for the invoice amount, or the proceeds of the sale, as the case might be, was desirous of remitting to A. accordingly. The remittance could only be made in money or in goods; but A. might not want a return cargo of English commodities, and the sending out of specie was both inconvenient and hazardous. For, first, the proper coin was to be procured at the money-changers; next, a ship was to be found to carry it; then it was to be safely deposited on board; an insurance was to be effected, and advices sent out by another vessel to A. If the ship arrived safe, there was the unloading, carriage, and delivery on the other side; if it were wrecked or captured, there was the entire loss, when uninsured, and the trouble of procuring payment when insured. Now suppose (to take the simplest case) that some third person, C., were about to take his departure from Hamburg to London, mutual accommodation would suggest the following arrangement:—A. would deliver to C. an open letter addressed to B., requesting him to pay to C. the amount intended to be remitted; and C., on receiving the letter into his possession, would pay directly to A. the value of it in money current at Hamburg, and having carried it over to London would there receive from B. the sum specified. By this simple contrivance much of the expense, and all the risk and trouble of remittance would be saved to B. or A.; and C., besides having a more convenient and portable sign of wealth, would probably receive a *bonus*, that is, some advantage for the accommodation. It is obvious, however, that to bring the machinery into operation several things would be wanting: such as, first, the knowledge by the two parties of the mutual want; secondly, confidence on the part of C. that the money would be paid by B. on presentment of the letter of request, or that in default of payment by him he might safely look for reimbursement to A.; and, thirdly, the assessment of the present value of the letter, or, in other words, the determining how much C. ought to give A. in ready money of Hamburg for the sum specified in the letter, to be paid at a future day in money of England. Now one branch of this last requisite, the adjustment of the comparative value of different currencies, fell directly within the province of the money-dealers, who, from their stalls or *banques* at the great fairs and marts of exchange, received the name of *banquiers* (bankers), and as all persons about to remit or to proceed to foreign countries resorted to them for the requisite coin, they would be enabled to furnish the merchants with information as to the other particulars also, and would thus naturally become the negotiators of this sort of exchanges.

But the transactions by way of letters of exchange would have been very limited, had they depended on the occasional coincidence of a party setting out in person to the country to which the remittance was to be made. There were, however, other cases in which the like operation might be made available; for although A. might not want goods from England in return for those shipped by him from Hamburg, other Hamburg merchants might, and so it might happen that at the very time of the intended remittance B. had money owing to him at Hamburg in respect of goods so shipped. Let it be supposed then that C., instead of setting out in person to London, were about to remit money to B., it is obvious that in that case the whole or a portion, as well of B.'s debt to A. as of C.'s debt to B., might be extinguished by a simple arrangement of the same kind as that before described. B. would write a letter addressed to C., requesting him to pay a specified sum to A., or, in mercantile phrase, would draw upon C. in favour of A.; this letter or draft he would remit, as payment, to A., who upon presentment to C. would receive from him the amount, and would give credit to B. in account accordingly.

To advance a step further, B. might not at the moment have any debtor at Hamburg through whom the substitution could be made; but as the trade between two countries is never, unless under unnatural circumstances, entirely unilateral—consisting, that is to say, solely of shipments of goods on the one part, and solely of remittances of money on the other—it would happen that if B. had not, other London merchants would have, sums of money owing from Hamburg. When therefore the convenience of this method of exchanges had been felt, it was natural that B., when desirous of remitting, should endeavour to find out some person so circumstanced, from whom he might procure an order upon his debtor; in other words, that he should buy a bill on Hamburg for remittance to A. For the reasons before mentioned, recourse would be had for this purpose to the money-dealers; and it is not difficult to conceive by what steps the business of procuring and supplying bills soon became in their hands a distinct and important branch of trade.

Nor, indeed, without the intervention of such dealers, could the system ever have become extensively useful; because although it is true, as has been said, that in the commercial intercourse of two countries it seldom happens that either is merely buyer or merely seller, it is equally rare that the value of the commodities exchanged is exactly balanced. There would consequently be at times a scarcity of bills upon one country and an excess of those upon some other. But as the system gradually matured itself, the dealers through whom the exchanges were effected, would find their advantage in adjusting the demand and supply by sending or procuring the superfluous bills in one market to fill up the void in another; and would thus be enabled, in general, to furnish the required accommodation on payment of a proportionate premium.

In the meantime, the instrument of transfer, which in this country had received the name of a bill of exchange, assumed a concise and permanent form, and became clothed with such properties and incidents as experience showed to be necessary or convenient. At first, no doubt, the order was to pay on presentment to the drawee, or as it was expressed in the instrument, 'on sight.' But, as the intervals between drawing and presentment would necessarily be extremely variable, it was found expedient, or it insensibly became the practice, to fix them by a definite scale; and hence probably arose what was called the *usance* between two ports or countries, being, as the name would seem to import, the period fixed by usage, at which, with reference to the date, a bill was presentable for payment. Afterwards these usances came to signify the periods at which the merchants of any particular country or port were in the practice of paying the bills so drawn upon them, and these customary periods being of course universally known among commercial men, the word usance soon came to signify a specific term of days, and it was formerly therefore not uncommon, when by agreement the time of payment was determined, to draw foreign bills payable at one, two, or more usances. In modern times, the more frequent practice has been to make them payable at so many days after sight, or at so many months or days after date. Again, in times when money was less at command than at present, it was but reasonable, that even after the maturity of the bill a short space should be allowed to the drawee for providing the requisite cash; and hence it became usual to grant what we term *days of grace*, which, though varying as to limits in different communities, are in almost all recognised as part of the law and custom of merchants.

Originally, as we have supposed, the bill was a letter addressed by B. to C., directing him to pay A. But an obvious improvement would early suggest itself, viz. that as it might not be convenient to A. to present the letter in person, he should have authority given him to appoint another, by whom the presentment might be made and the money received in his stead. It assumed therefore the form of a direction to pay A., or such person as A. should nominate and appoint, expressed with the quaint conciseness of mercantile phraseology, thus: 'Pay A., *or order*.' But if the letter or bill in the hands of A. were assignable, there was no reason why it should not be equally so in the hands of his assignee, and thus by the operation of the words 'or order,' it obtained the character of a negotiable instrument or sign of value, transferable from hand to hand by a simple act of delegation apparent upon some part of it. The form of assignment, it may be readily conceived, would at first run in some such language as this: 'Pay the within to D., or his order—signed A.,' and by a similar superscription D. might in like manner assign his right to E., and E. to F., and so on. But as the bill was of course *delivered* to each successive assignee, possession was of itself a sufficient voucher for payment, and the special superscription therefore was soon frequently dispensed with as unnecessary, the assignment of the prior holder being indicated by his signature alone. In England, and in some other countries, it has long been the practice to write the assignment on the back of the instrument, and it has thence received the name of an *indorsement*, the form first described, in which the assignee is named, being termed a *special* indorsement, or an indorsement *in full*, and the mere signature of the assignor, an indorsement *in blank*.

When bills were drawn payable, not as at first on sight, but at some future day, it was natural that the first holder who had the opportunity of doing so should, during the currency of the specified period, shew the bill to the drawee, and procure from him an undertaking to pay it at maturity. If he refused, the bill was protested for non-acceptance and notice of the dishonour was immediately communicated to the drawer. If he gave the undertaking either verbally or in writing upon the bill or otherwise, he was said to have *accepted* it, and became thenceforth liable, as the acceptor, for the amount specified. For the effect of the acceptance was this: the drawee thereby affirmed the right of the drawer to call upon him for payment of the money, and he assented moreover to the transfer of the right, or, to borrow a legal phrase, he *attorned* to the holder of the order. If, therefore, after acceptance, he refused to pay the bill when due, he was responsible to the drawer as having acknowledged himself to be his debtor, and to the payee or other party in possession in respect of his express engagement. But the right of the holder was not confined to the acceptor; for although, after acceptance, the drawee became the principal debtor, to whom therefore recourse must be had in the first instance, yet if upon regular presentment he made default in payment, the holder was not bound to take measures against him alone, but might resort to all prior parties whose names appeared upon the instrument. For as the indorsement conferred the right to receive the money, it was to be presumed that it had not been made without an equivalent, and it was but justice therefore that on the dishonour of the bill by the drawee, the holder should receive back the value which he had given; and as every person, whose signature, whether as drawer or indorser, appeared upon the bill, acknowledged himself by the act of signing, to have received value for the delivery of the order, it was not unreasonable that the reimbursement should be claimed, not merely from the party from whose hands the bill had been received, but also from the drawer and every subsequent party whose name preceded that of the holder. The result therefore was this: if the drawee paid according to the tenor of the bill, the arrangement was complete, and all parties were satisfied; but if he dishonoured it, by a refusal either to pay or to accept on due presentment, a notification of the dishonour was conveyed by the holder to all parties preceding him, or to such as he thought fit to call upon for indemnity; if then the drawer paid the money, or as it was termed *took up the bill*, all the other parties were exonerated, and the drawer had his remedy against the drawee, upon the bill if accepted, or upon the original consideration in respect of which it was drawn, if the acceptance had been refused. In like manner, whoever satisfied the bill by payment, thereby discharged all parties posterior to himself, and obtained a right against all who preceded him. Thus each successive indorsee had the accumulated security of all the parties whose signatures were upon the instrument as acceptor, drawer, or indorser, when it came into his hands.

The party remitting a bill is by the supposition debtor to him to whom the remittance is made; and after the explanation just given, it will be obvious that it would be required of him to acknowledge and fix his liability by making himself a party to the instrument. The bill therefore purchased by him would not be, as has been above supposed, and as at first was probably the case, a direction to pay the remittee, but to pay the remitter or his order; and hence it happens, as was said in the commencement, that the party to whom the bill is made payable, is in mercantile language sometimes called the *remitter*.

Bills remitted to or from places abroad are of course liable to be lost in their passage; and to obviate the inconvenience thence resulting, it became usual to draw them *in sets*; that is to say, two or more parts of each bill were drawn, and described as the 1st, 2nd, 3rd, and so on, each containing a condition that it should be payable only while the others remained unpaid. But this practice of drawing in sets is made available for another purpose. The payee having indorsed and paid away one part, frequently remits another part to some agent or correspondent at the place of the drawee's residence, to be by him presented for acceptance, with a direction added, by way of memorandum, to the bill, that, when accepted, it is to be held for the use of the person who shall duly present the other part or parts for payment at maturity. The advantage of this arrangement is obvious: if the bill be accepted, it is held, according to the direction, till maturity: if refused, it is protested, and notice is given to the drawer. Upon this protest the drawer may be called upon to give security for the due payment of the bill at the expiration of its currency; or, as occasionally happens, some correspondent of the drawer at the place upon which the bill is drawn accepts it for his honour, and thereby places himself in the situation of the original drawee, being liable as acceptor to all parties subsequent to the drawer. Such an acceptance is called an acceptance *supra protest*, or *for honour*, and may be made at any time during the currency of the bill, and on behalf of any party who is liable upon it after default made by the drawee. In short, without entering into further details, by successive modifications and improvements the letter of request has become at length a very useful and convenient instrument of exchange, the operation of which as a vehicle of remittance at the present day will be apparent from the following illustration.

A person in London has a payment to make in Paris, say, for convenience, of 1000*l.* Instead of remitting the money, he goes to an exchange-broker, and purchases from him a bill on Paris equivalent to that sum. But how is that equivalent to be ascertained, or, in other words, for what amount in French money is the bill to be drawn? In the determination of this question there are several items of calculation. The bill will be payable in francs; how many francs then are equal to 1000*l.* By the mint regulations between England and France, 1*l.* sterling of English money is equal to 25 francs, 20 cents, which is therefore the nominal or standard *par* of exchange between the two countries. According to this scale then, 1000*l.* in London would be worth 25,200 francs in Paris. But the par is fixed on the supposition that the currencies of the two countries respectively are uniformly of the weight and purity established by the Mint, whereas not unfrequently the coin is debased by alloy or attrition, and the relative value undergoes a corresponding alteration. This deviation however is well known, and may be regarded as comparatively constant. But there are other circumstances affecting the ratio of value of a more fluctuating and unsteady operation. When, for instance, any considerable portion of the circulating medium of either of the two countries between which the exchange is to be effected consists of a paper currency, the standard is materially affected by the quantity of paper in circulation. Without entering into an exposition of the law of this variation, it is sufficient to remark, that a redundancy of paper money has invariably the effect of depreciating the standard, or, in other words, of raising the value of the *standard coin* as compared with the same nominal sum in *paper-money.* This effect is temporary only when the paper is convertible into specie on demand; if inconvertible, it is both permanent and considerable. Thus it is well known, that, at one period of the late war, the English guinea was worth 26*s.* in money, estimated according to the value of the 1*l.* sterling in bank notes. At that time therefore the English pound would fall far below the Mint standard of 3*l.* 17*s.* 10½*d.* per ounce, and a proportionate effect would be produced on the rate of exchange with any other country in which the standard was maintained. Taking, as before, the instance of France, the par would vary, other things remaining constant, from 25 francs to somewhere about 19 francs, or 1000*l.*, in a Bank of England note, would buy a bill on Paris, not for 25,200 francs, but for about 19,000 francs only. But it is evident that the same cause might be operating in a greater or less degree in France also, in which case the calculation would be still further complicated by a *comparison* of the depreciation in the one country with that in the other. The variation here taken for an example is of course an extreme case, but fluctuations the same in kind, though less in degree, are still of continual occurrence, and must be carefully taken into account in all calculations as to the price of bills.

But besides these monetary influences on the nominal par, there are other causes in operation which materially affect the rate of exchange, and by consequence the price of bills. The accommodation of a remittance in the form of a bill of exchange is worth a calculable sum, the maximum being the compound of the labour, expense, and risk of the transmission of money in specie. Suppose this maximum to be one per cent., it is evident that it is worth the while of the remitter to pay any sum short of 10*l.* for the purchase of a bill equivalent to 1000*l.* Now the market price of bills, like that of every other commodity, is mainly dependant on the relation of the supply to the demand, and this again is primarily regulated by the state of trade between two given countries. When the value of the exports to any country in a given period is equal to the value of the imports from the same country in the same period, the trade is said to be balanced; the bills drawn in each country upon the other will be equal in amount, and this equilibrium constitutes what is called the *real* par of exchange. But it is obvious that this state of things can never actually exist, that it is the point on each side of which the exchanges will continually oscillate, and at which they will never rest. Even where, upon the average of years or months, the trade is nearly even, there will be disturbing circumstances which will have a temporary effect upon the exchanges. There will consequently be occasional scarcity and occasional abundance of foreign bills in the market. When scarce, their price of course is higher, or, as it is ordinarily expressed, they bear a *premium.* At such times the imports exceed the exports, and the exchanges are said to be *against us.* Suppose that, in the trade between England and France, the value of our imports from France exceeds that of our exports to France by about three-fourths. The effect of this, if matters were left to themselves, would be, that of the remittances to France three-fourths must be made in specie, and that the bills in which the remaining one-fourth was made would be at the maximum price, that is to say, taking the scale before adopted, would bear a premium of all but one per cent. But it is a fact, incontestably established, that in every trading community the value of the whole of the exports taken together is, upon an average, very nearly balanced by the value of the whole of the imports, or, in other words, that ultimately all commodities imported are paid for directly or indirectly in commodities exported. Necessarily, therefore, the bills drawn in England upon foreign countries, say in one year, nearly balance the bills drawn in foreign countries upon England in the same period. Thus, to take a familiar instance, although there may be a deficiency in London, to the extent of three-fourths, of bills upon France, there may be an excess, in nearly the same ratio, of bills upon Belgium, and in like manner there may be an excess in Belgium, to the same extent, of bills upon France. Acting on the knowledge of this fact, the London bill-merchant by means of his agent will buy bills upon Paris at Antwerp, where they are cheapest, and bring them for sale to London, where they are dearest. The cost of procuring, and the profit of the bill-merchant, therefore, upon this transaction, constitute the third element in the calculation. Supposing then the bill to be a *good* one, that is to say, guaranteed by names of known and established credit, the only remaining operation is to estimate the discount according to mercantile practice, or, in other words, the interest of 1000*l.* in money for the time which will elapse before payment of the bill; and the combined result will give the sum in francs for which the bill is to be drawn, or the amount of bills already drawn to be given in exchange for 1000*l.*

The same remarks, *mutatis mutandis,* are applicable, if instead of a remittance to Paris a sum of money was to be received from thence; for the mode adopted would be this. The party in London would draw a bill upon his debtor in Paris, for which the exchange-broker would immediately give him the value, ascertained as before, either in cash or in bills upon London, or in both; and although the system, as here explained in detail, may seem, as in truth it is, of some complexity, yet practically the price, like that of every other commodity, readily adjusts itself. In London it is the practice for the bill-brokers to go round to the principal merchants and inquire whether they are buyers or sellers of bills. The relation of supply and demand being thus ascertained, a few of the most influential merchants settle the average price at the Royal Exchange; and a document known as 'Wetenhall's List' contains the record of rates according to actual transactions. By these means the value of particular bills, varying of course according to the credit of the parties to them, or, as it is generally called, *the goodness of the names,* is easily determined.

Bills of exchange are also in frequent use for the purpose of remittance from one part of the United Kingdom to another. Thus the trader in Manchester, Leeds, or Birmingham, who has a payment to make in London, remits bills of his customers in the country. These are discounted by the monied capitalists through the intervention of bill-brokers. A few of the London bankers also discount for the accommodation of their customers, and the Bank of England deals extensively in that department. The bills so cashed are transmitted to the provincial banks to be presented at maturity for payment. Conversely, in the provincial towns the country bankers discount bills on London, and transmit them to their correspondents there for payment. The rate of discount varies according to the demand for money, and the character of the particular bills; but it is seldom, upon regular transactions, more than four, or less than two and a half per cent.

Hitherto bills of exchange have been considered, in their primary application, as media of remittance, but there are other purposes equally important, to which, by an intelligible transition, they have been made subservient. For, the use and properties of bills being once understood, and their validity recognized, nothing was more natural than that they should be applied to the ordinary transactions of trade. A trader desirous of purchasing a commodity for which his available funds might not enable him to pay ready money, would tender to the seller an order for payment on some other person, receiving or paying the difference, as the case might be, and making an allowance by way of interest, or, which is the same thing in other words, paying an extra price, in proportion to the time of the bill's currency. To the seller this mode of dealing would obviously be better than the giving of a naked credit, as affording him an additional chance of payment, and a written acknowledgment of his debt. Moreover, when the negotiability of inland bills was admitted, they served all the purposes of actual money, because in the same manner as the original seller had been induced to take the order in payment, another might be willing to receive it from him in the purchase of other commodities; or it might be at once discounted or converted into cash by application to a money-dealer, whether bill-broker or banker, in the manner which has been already explained in speaking of remittances.

But the drawing of a bill supposes, as has been said, that the drawee either has in his possession funds of the drawer, or is his debtor to the amount specified in the order: it was therefore by an easy step that in the transactions of wholesale dealing it became a common practice for the seller to draw upon the buyer, for the price of the goods, a bill payable to his (the seller's) own order at some future day. This bill the buyer immediately accepted, and thus in effect acknowledged himself to be the debtor of the drawer to the amount specified, and engaged to pay the holder at maturity. By this arrangement, now very general, the buyer obtains credit for the term at the expiration of which the bill is made payable, and the seller has the advantage of a fixed day for payment being named in the bill, and a means of procuring cash if he chooses to negotiate the bill.

Neither was it an unreasonable extension of the principle that a bill should be drawn and accepted *on the faith of funds to be received by the drawee* at or before the maturity of the draft. At the present day this practice prevails to a great extent, and may be illustrated by a supposed case as follows:—There are established in most if not all the principal trading ports of the world, merchants who carry on the business of general factors or agents for sale, and whose establishments are known among mercantile men under the name of commission-houses. The course of dealing with such houses is, for the most part, this:—A., a manufacturer at Manchester, consigns a cargo of cotton pieces to B and Co., a commission-house at Mexico, for sale on his account. The English correspondents of B. and Co. are Messrs. C. and Co. of London. By an arrangement among these several parties A. draws on C. and Co. for half or two-thirds, as may be agreed, of the invoice price of the goods consigned, and discounting the bill with his banker obtains at once an instalment in actual money, which immediately returns into his capital, and becomes useful in producing more goods and creating more wealth. Ultimately, account sales are furnished by the Mexican house, and A. again draws on C. and Co. for the balance, if in his favour. Annual balances are struck between B. and Co. and C. and Co., and remittances by bills for the adjustment of the account complete the transaction. Now the advantages of this anticipatory part-payment are obvious, more especially in the trade with distant countries, as South America or the East Indies. But the practice has degenerated into something of an abuse; for it has of late been frequent with the consigners of goods to make out invoices with prices artificially high, and so to procure a remunerating return even from the proportion for which they are authorized to draw in advance. The effect is to throw upon the consignees the whole risk, which was formerly shared between the two, and proportionately to impair the steadiness and security of commerce.

Perhaps, however, if this were the only abuse of bills, there would be little to complain of—nothing, certainly, to counterbalance the immense advantages which are derived from them as instruments of exchange; but, unfortunately, of late years, the abundance of money in the English market, and the consequent facility of negotiating paper securities, the competition of trade, and the accompanying relaxation of the system of credit, with other causes which will readily suggest themselves, have given occasion to practices which are not only a wide departure from the original purposes of bills of exchange, but are most injurious to the general interests of trade. Good bills, we have said, may be always discounted. Accordingly, any man whose credit is good may at any time raise money upon a bill drawn, accepted, or indorsed by himself. If his credit be doubtful he may still procure cash by the same expedient, paying, however, a premium or rate of discount proportioned to the increased risk. Among needy men instances are not unfrequent of discounts procured by these means even at the exorbitant rate of 20 or 30 per cent. But a still more common practice is the negotiation of what are called by the significant name of *accommodation* bills. A trader unable to meet his liabilities applies to a friend whose credit is better than his own, to accept, or in some other way to become a party to, a bill concocted for the purpose, undertaking to provide the funds necessary for paying it when due, and generally giving in return his own acceptance of another concocted bill, known in the mercantile world as a cross acceptance. When one or more names have thus been obtained sufficient to give currency to the bill, it is discounted, and the money applied to the necessities of the trader. As this bill falls due, the same operation is repeated, until the system of expedients failing at last, as sooner or later it inevitably must, the ruin of the insolvent trader himself is consummated, and not unfrequently draws along with it others who, unfortunately or imprudently, may have become parties to these unsubstantial representatives of value. Of the more serious mischiefs of this dangerous practice, such as the temptation to forgery by the use of fictitious names as drawers or payees, it is perhaps useless to speak, because few men at first seriously contemplate the commission of a crime, but are rather drawn into it by circumstances not foreseen or not appreciated; but the reflection that it is a foolish and improvident practice—that, in addition to the loss of credit, which, once perceived (and how can it fail to be perceived?), it is sure to occasion, there is the certain expense of stamps and higher rates of discount, and moreover a *double liability* in respect of every shilling for which cross acceptances are given—may perhaps have some effect in deterring honest men, however necessitous, from having recourse to this fatal expedient.

The various uses to which bills of exchange are made applicable in the great community of commerce having been thus explained, it remains only to take a glance at their legal incidents as instruments of contract.

In contemplation of law, a bill of exchange, as well in its original formation as in its successive transfers, is an assignment of a debt, by which the right of the original creditor to sue for and obtain payment is transferred to the holder for the time being. In such a substitution the Roman law saw nothing objectionable; and in those countries therefore which adopted the civil law for their own, the negotiation of bills found no impediment. But the common law of England had early taken up a notion, founded probably on experience of the mischief, that the assignment of things not in possession, such as a debt or right, being in truth the assignment of suits at law, might be converted into an engine of oppression, and refused therefore to recognize the validity of such transfers. Bills of exchange fell within the boundaries of this prohibition, but the reason of the prohibition did not apply; and as the operations of commerce would have been impeded, if usages current among merchants generally had not received the sanction of the municipal tribunals in the several countries in which they were carried on, the negotiability of bills, which was recognized elsewhere, was of necessity admitted as part of the law of England. It was not, however, until three centuries after the indulgence thus shown to foreign bills, that the negotiability of inland bills, which could not plead the same warrant of prescription, was recognized by the courts, unless on proof of some special custom of trade; but expediency finally prevailed, and at the present day, as well by the common law as by the statutes of 9 and 10 Will. III. c. 17, and 3 and 4 Anne, c. 9, they stand on the same general footing as foreign bills.

It is this assignability, vesting in the holder a right of action against the original parties, which chiefly distinguishes a bill of exchange from every other form of contract recognised by our law. Another and scarcely less important privilege is, that though a simple contract debt, and as such requiring a *consideration*, or *quid quo pro*, to give it legal efficacy, the consideration is presumed until the want of it be shown. It is available therefore in the hands of a *bonâ fide* holder, upon merely formal proof of title by the signature of the parties to be charged: that is to say, it is unnecessary to prove value given, unless it be first shown on the other side that the bill is in some stage or other tainted with an illegality, and the *bona fides* is assumed until it shall be made to appear that the holder was, at the time of taking it, privy to that illegality. From this rule an exception is made as to bills given for a gambling debt, which by statute are void even in the hands of an innocent holder.

Of the Parties to a Bill.—Any person, whether trader or not, who is not under a legal incapacity to contract, may become party to, and thereby liable upon, a bill of exchange. Infants and married women are not personally bound by becoming parties, but the instrument, though inoperative as against them may be available against others whose names are upon it. A person may become party to a bill, not only by his own act, but by that of his duly authorized agent. The agent ought either to sign the name of his principal without anything further, or to add to his own signature the words 'per procuration for A. B.,' or to make it in some way apparent upon the face of the instrument that he acts *as agent.* Otherwise, though really an agent, he renders himself personally liable by his signature, and exempts his principal. Any one who assumes to draw, accept, or indorse by procuration, knowing that he has no authority to do so, though without any intention of committing a fraud, is, upon default by the person whose authority is assumed, liable, though not upon the bill as a party, yet to a special action for deceit at the suit of a *bonâ fide* holder.

Each member of a trading firm has an implied authority to bind his copartners by drawing, accepting, or indorsing bills: but this presumption of authority fails where the holder has covinously colluded with a partner to make the partnership funds or credit available to his own individual purposes. The acceptance of a bankrupt partner in the name of the firm, though after a secret act of bankruptcy committed by that partner, is an available security in the hands of an indorsee for value.

Of the form and other requisites of a bill.—A bill of exchange must be in writing, but no precise form of words is essential to its validity. The only requisites are that it be an order for the payment of money simply, and not for the payment of money and the performance of some other act, and that it be payable at all events, and not upon a contingency, or out of a particular fund. The forms in ordinary use are as follows:

Form of a Foreign Bill in sets.

No. *London.* 1st *Jan.* 1835.

[Stamp]

Days after sight (or days after date, or at usances) pay this my first of exchange, second and third of the same tenor and date not paid, to Messrs. A. B. and Co., or order, ten thousand francs value received of them, and place the same to account. C. D.

Mr. E. F., *Paris.*

Form of an Inland Bill.

[Stamp]

£100.

London, 1st *Jan.* 1835.

months after date (or 'at sight,' or days after date) pay Mr. A. B., or order, one hundred pounds for value received. C. D.

To Mr. E. F., *Castle-street, Liverpool.*

To take the several parts of this form in their order:—

All inland bills, and such foreign bills as are drawn in England, are liable to a duty, and must be made on paper, duly *stamped,* under a penalty of 50*l.* Foreign bills not drawn in England are of necessity excluded from the operation of this statute.

For inland bills and for foreign bills drawn singly the scale is as follows·

							Not ex. 2 mths. after date, or 60 days after sight.			Exceed. 2 months, &c.		
	£.	*s.*		£.	*s.*		£.	*s.*	*d.*	£.	*s.*	*d.*
If	2	0	and not above	5	5	..	0	1	0	0	1	6
Above	5	5	„	20	0	..	0	1	6	0	2	0
	20	0	„	30	0	..	0	2	0	0	2	6
	30	0	„	50	0	..	0	2	6	0	3	6
	50	0	„	100	0	..	0	3	6	0	4	6
	100	0	„	200	0	..	0	4	6	0	5	0
	200	0	„	300	0	..	0	5	0	0	6	0
	300	0	„	500	0	..	0	6	0	0	8	6
	500	0	„	1000	0	..	0	8	6	0	12	6
	1000	0	„	2000	0	..	0	12	6	0	15	0
	2000	0	„	3000	0	..	0	15	6	1	5	0
	3000	0	„			..	1	5	0	1	10	0

For foreign bills drawn in sets the scale is

For every bill of each set, if the sum does not exceed 100*l.*				0	1	6
Exceeding	100*l.*	and not exceeding	200*l.*	0	3	0
	200	„	500	0	4	0
	500	„	1000	0	5	0
	1000	„	2000	0	7	6
	2000	„	3000	0	10	6
	3000	„		0	15	0

A bill altered in any material respect after it has been once issued is in effect a new bill, and to which the existing stamp cannot therefore be applied. No action can be maintained in any court of law or equity upon a bill not having the proper stamp as well in denomination as in value.

A *date,* though usual, is not essential to a bill unless drawn for a sum under 5*l.* When no date is given, the bill is presumed to be dated when drawn.

A bill in which no *time of payment* is expressed is construed to be payable on demand.

Bills, as has been said, are ordinarily made *payable* to some third person, or to the drawer himself. They may, however, be expressly made payable to bearer, and when no name, or a fictitious one, is given as payee, the instrument is in legal effect payable to bearer. It must be observed that the inserting a fictitious name as payee and indorsing the bill with that name is a forgery, and punishable as such.

The words '*or order*' give to the bill its character of negotiability, but the general operation of this expression may be restricted by the payee or any other indorser, who by the following simple form of indorsement, 'Pay A. B. (or A. B. or order) *to my use,*' may cast upon the next immediate holder the responsibility of seeing that the contents are duly applied.

The *sum* should be clearly expressed in the bill, and in such way as to render forgery difficult. But a blank draft or acceptance given to a third person may be filled up by him with any sum which the stamp will cover.

'*Value received*' upon a bill signifies, in general, value received from the payee, and the bill itself without these words imports so much. A *total* want of consideration is ground of defence to an action upon the bill as between immediate parties, but is not available as an answer to the claim of a holder for value who has taken the security in the regular course.

An alteration in a bill in any material part, as in the date, sum, or time when payable, will, independently of the stamp acts, render the bill wholly invalid as against any party not consenting to the alteration, and this although it be in the hands of an innocent holder. But an alteration in a part not material, or made merely for the purpose of correcting a mistake, in furtherance of the original intention of the parties, though made after the bill is complete, will not invalidate it, either as regards the stamp laws or otherwise.

Of the delivery of the bill to the payee.—The delivery of a bill of exchange in consideration of an antecedent debt, suspends the right to sue for that debt during the currency of the bill; but if it be dishonoured at maturity, the original debt revives and with it the legal remedy, provided that no act be done by the holder to prejudice or impair the claim of the drawer upon the acceptor. In like manner the taking of a bill of exchange in payment suspends for the time the lien of a seller upon goods sold and remaining in his possession; but if the bill be not paid when due, he is remitted to his right of retaining or stopping the goods before they reach the buyer.

Of the presentment, acceptance, and non-acceptance of bills.—It is usual, as already said, for the payee, or the first holder who conveniently can do so, to present the bill to the drawee for acceptance; and when a bill is drawn payable at a certain time after sight, presentment for acceptance is necessary in order to fix the date of payment, and ought to be made within a reasonable time. A foreign bill so drawn may be *circulated* for any length of time before acceptance, and an inland bill may also be put into circulation, though with less latitude as to time; but in either case, if the payee *keep the bill in his possession* for a longer time than is customary among merchants, he is guilty of *laches,* and cannot recover against the drawer.

The presentment should in all cases be made during the usual hours of business, and to the drawee himself or his agent, who is bound to return an answer within twenty-four hours.

The acceptance of an *inland* bill must be in writing on the bill itself. A foreign bill may be accepted verbally or by a written paper, such as a letter, not part of the bill itself. An engagement to accept a bill not then drawn is not, in contemplation of law, an acceptance.

An acceptance may be either absolute or qualified.—An absolute acceptance is an engagement to pay the bill according to the tenor: a *qualified* acceptance is when a bill is accepted *conditionally;* as that the drawee will pay when certain goods shall be sold, or when certain funds shall come to his hands, or the like, and in this case the acceptor is not bound until the fulfilment of the condition.

A bill may also be accepted *partially*, as to pay a sum short of that for which the bill is drawn, or at a different time or place. In all cases of a conditional or partial acceptance, the holder ought to give notice thereof to all parties whom he intends to hold liable on default.

An acceptance may also be qualified as to the place of payment, but in inland bills this can only be done by the use of restrictive words: as for instance, 'Accepted payable at Sir Jas. Esdaile and Co., and *not elsewhere.*'

If the drawee refuse or neglect to accept, any third party, after protesting the non-acceptance by the drawee, may accept for the honour of the drawer or any subsequent party, and such an acceptance is called an acceptance *supra protest*, or *for honour.*

Upon the non-acceptance of a foreign bill, a protest is made by the holder, or a public notary for him. Inland bills need not be protested, and in practice are merely noted for non-acceptance, which itself also is a useless form.

Notice of the non-acceptance must be given with all diligence to every party to whom it is intended to resort for payment, the want of such notice being a discharge from liability—to the drawer on the ground that he is prejudiced by not receiving immediate information of the default, so as to enable him to withdraw his effects from the hands of the drawee, and to the indorsers for a similar reason, inasmuch as their interests may be affected by the delay. If the drawer had in truth no effects in the hands of the drawee, the omission to give the drawer notice constitutes no objection to the right of action as against *him.* Generally, the notice must be given within twenty-four hours after the dishonour, and each party on receiving such notice is allowed the same interval for communicating to those who precede him upon the bill.—The notice may in all cases be sent by the post, and it is sufficient to show that the letter containing it was delivered into the post-office.

The death, known insolvency, or even bankruptcy of the drawee, affords no excuse, either at law or in equity, for a neglect to give due notice of non-acceptance; but any party may, by agreement, or by a subsequent admission of his liability, dispense with or waive the notice to which he is entitled; and where the residence of the party is unknown, due diligence to discover it is all which the law requires.

Of the indorsement and transfer of bills, something has been already said. No form has been prescribed by the law for the mode of indorsement, and in general the mere signature of the party is sufficient. After an indorsement in full, the holder can derive title only through the special indorsee, whose signature therefore must appear upon the bill.—An indorsement is valid though made after the bill is become due, but the holder in that case is entitled only to such advantages as might have been claimed by the last indorsee before the maturity.

After payment of a part, the bill may be indorsed over for the residue. Bills payable to bearer may be transferred by delivery only without indorsement. An indorsement may be restricted by the words before mentioned, 'Pay A. B. to my use,' or by any other expression clearly limiting the authority to assign.

A *bonâ fide* holder for value is not affected by the want of title in any previous indorser; but gross negligence in taking a bill which has been lost or stolen takes away the right of action against all who were parties prior to the loss. If the holder, under such circumstances, has a right to recover upon the bill, it follows that the party who has lost it is deprived of the right. But where no claim is made from any other quarter, he may in general, through the medium of a court of equity, obtain payment on giving an indemnity; and it is provided by Stat. 9 and 10 Wm. III., c. 17, s. 3, 'that in case any inland bill for value received and payable after date shall happen to be lost or miscarried, within the time before limited for the payment of the same, then the drawer of the said bill is and shall be obliged to give another bill of the same tenor with that first given; the person to whom they are delivered giving security, if demanded, to the drawer, to indemnify him against all persons whatsoever, in case the said bills so alleged to be lost or miscarried shall be found again.'

If it can be shown that the bill has been actually destroyed, the amount is recoverable in a court of common law.

Of the presentment for payment, &c.—The holder of a bill is bound to present it to the drawee for payment at the time when due, when a time of payment is specified, or within a reasonable time after receipt of the bill when no time is expressed. If he neglect to do so, not only is he disabled from afterwards resorting to the drawer or indorsers—whose implied engagements are severally to pay only in case of default by the drawee, and who are always presumed to have sustained damage by such neglect on the part of the holder—but he loses also his remedy for the consideration or debt in respect of which the bill was given or transferred. As in the case of presentment for acceptance, so in that of presentment for payment, the insolvency of the acceptor furnishes no dispensation of presenting for payment, as regards the drawer and indorsers; but to an action against the acceptor presentment is not in any case a necessary preliminary. If the acceptance be qualified as to the place of payment in the manner before described, the presentment must be made at the place so specially indicated; but in general, a presentment at the domicile of the drawee is sufficient, even though another place be named upon the bill. The presentment ought to be made after the expiration of the days of grace, which have been before adverted to. Bills payable on demand, or where no day of payment is expressed, are not entitled to days of grace.

The following is a statement (taken from M'Culloch's *Dictionary of Commerce*) of the usance and days of grace for bills drawn in London upon some of the chief commercial cities.

m. d., *m. s.*, *d. d.*, *d. s.*, *d. a.*, respectively denote months after date, months after sight, days after date, days after sight, days after acceptance·

London on	Usance.	Days of Gra
Amsterdam . .	1 *m. d.*	6
Rotterdam . .	1 *m. d.*	6
Antwerp . . .	1 *m. d.*	6
Hamburg . .	1 *m. d.*	12
Altona . . .	1 *m. d.*	12
Danzig . . .	14 *d. d.*	10
Paris . . .	30 *d. d.*	10
Bordeaux . . .	30 *d. d.*	10
Bremen . . .	1 *m. d.*	8
Barcelona . . .	60 *d. d.*	14
Geneva . . .	30 *d. d.*	5
Madrid . . .	2 *m. s.*	14
Cadiz . . .	60 *d. d.*	6
Bilboa . . .	2 *m. d.*	14
Gibraltar . . .	2 *m. s.*	14
Leghorn . . .	3 *m. d.*	0
Leipzig . . .	14 *d. a.*	0
Genoa . . .	3 *m. d.*	30
Venice . . .	3 *m. d.*	6
Vienna . . .	14 *d. a.*	3
Malta . . .	30 *d. d.*	13
Naples . . .	3 *m. d.*	3
Palermo . . .	3 *m. d.*	0
Lisbon . . .	30 *d. s.*	6
Oporto . . .	30 *d. s.*	6
Rio Janeiro . .	30 *d. d.*	6
Dublin . . .	21 *d. s.*	3
Cork	21 *d. s.*	3

It should be remarked however that many of these usances are obsolete in the strict sense of the word. The same remark applies to days of grace; in Hamburg or France, for instance, it would be destructive of credit not to pay a bill on the very day that it becomes due. In England three days of grace are allowed and always taken, so that bills are not presentable for payment until the three days are expired.

In general, payment made on any part of the day on which the bill is presented will be sufficient; yet if payment be once refused, however early in that day, the bill is effectually dishonoured by such refusal, and recourse may be at once had to the other parties. The requisites, with respect to notice, &c. are the same as those which have been already given under the head of presentment for acceptance. In this country no damages are recoverable upon inland bills dishonoured, the party sued being liable only for the amount of the interest to the day on which judgment is entered up. On foreign bills duly protested the expenses occasioned by the dishonour, as re-exchange, postage, commission, and provision, may be recovered under the name of damages, and amount sometimes to a considerable sum. But neither in this country nor in any other can compensation be claimed by the holder for losses more remotely consequential, as the expense of travelling or the disappointment of some profitable adventure.

If the holder make any agreement with the acceptor for taking a composition from him, or limiting a time within which he will not press for payment, all the other parties to the bill, being in the situation of sureties only, are exonerated from their liability by this dealing with the principal.

Payment should be made only to *the holder* of the bill: and it may be refused unless the bill be delivered up. It is usual moreover and prudent to take a receipt written on the back. If payment be made by mistake, as upon a forged acceptance, indorsement, or the like, the money so paid may be recovered back from the holder, provided the discovery has been made in sufficient time to allow the regular notices to be given, as in case of non-payment.

The forgery of a bill of exchange or of any signature thereto, as well as the uttering of any such forged bill or indorsement with a knowledge of the forgery, is a felony, punishable with transportation for life.

BILL OF HEALTH. [See QUARANTINE.]

BILL OF LADING, an acknowledgment signed usually by the master of a trading ship, but occasionally by some person authorised to act on his behalf, certifying the receipt of merchandise on board the ship, and engaging, under certain conditions and with certain exceptions, to deliver the said merchandise safely at the port to which the ship is bound, either to the shipper, or to such other person as he may signify by a written assignment upon the Bill of Lading.

The conditions stipulated on behalf of the master of the ship are, that the person entitled to claim the merchandise shall pay upon delivery of the same a certain specified amount or rate of freight, together with allowances recognised by the customs of the port of delivery, and known under the names of primage and average. Primage amounts in some cases to a considerable per centage (ten or fifteen per cent.) upon the amount of the stipulated freight, but the more usual allowance under this head is a small fixed sum upon certain packages, *e. g.* the primage charged upon a hogshead of sugar brought from the West Indies to London is sixpence. This allowance is considered to be the perquisite of the master of the ship. Average, the claim for which is reserved against the receiver of the goods, consists of a charge divided *pro rata* between the owners of the ship and the proprietors of her cargo for small expenses (such as payments for towing and piloting the ship into or out of harbours), when the same are incurred for the general benefit.

The exceptions stipulated on behalf of the shipowners are explained on the face of the Bill of Lading, which instrument is in this country usually drawn up in the following words:—

'Shipped, in good order and well conditioned, by [John Smith], in and upon the good ship called the [Mary], whereof is master [Thomas Jones], now lying in the [River Thames], and bound for [Hamburg]

[I S 1 at 100 Ba
„ 1 at 7 Chests]

e Hundred bags of Coffee, and
en Chests of Indigo],

marked and numbered as in the margin, to be delivered in the like good order and condition at the aforesaid port of [Hamburg] (*the act of God, the King's enemies, fire, and all and every other danger and accidents of the seas, rivers, and navigation, of whatever nature and kind soever excepted*) unto [Messrs. Schröder and Co.] or their assigns, they paying freight for the said goods at the following rates, viz. [One Shilling and fourpence sterling per Hundred Weight for the Coffee, and five-eighths of a penny sterling per pound for the Indigo], together with primage and average accustomed. In witness whereof, I, the said master of the said ship, have affirmed to [four] bills of lading, all of this tenor and date, any one of which bills being accomplished, the other [three] are to stand void. Dated in London, this [first] day of [September] 1835.

'Thomas Jones.'

In every case where shipments are made from this country, one at least of the bills of lading must be written upon a stamp of the value of three shillings.

One of the bills (unstamped) is retained by the master of the ship, the others are delivered to the shipper of the goods, who usually transmits to the consignee of the goods one copy by the ship on board which they are laden, and a second copy by some other conveyance. In case the ship should be lost, when the goods are insured, the underwriters require the production of one of the copies of the Bill of Lading on the part of the person claiming under the policy of insurance as evidence at once of the shipment having actually been made, and of the ownership of the goods.

Considerable hardship was experienced up to a late period from the state of the commercial law of England as regarded pledges. A factor to whom consignments of goods should be made had full power over those goods to sell them, with or without, or even against, the instructions of the owner, but he had no right to pledge them, and if he did so the owner of the goods might insist upon their restitution from the pawnee without repaying the advances he might have made. It was impossible to know from the terms of the document whether the holder of a Bill of Lading was actually the owner of the goods represented by it, or only entrusted with them as a factor, and cases of great hardship frequently occurred, sometimes indeed not without suspicion of collusion between the owner and the factor. This law was defective, because it visited upon a third party the carelessness or error of the owner of the goods in making a false estimate of the character of the factor whom he employed, and because, on the other hand, it frequently compelled factors to sell goods at an unfavourable moment, the necessity for which course might have been averted if they could legally have given the goods in security for an advance of money. This state of things was remedied by the act 6 George IV. c. 94, the second section of which declares 'that any person in possession of a Bill of Lading shall be deemed the true owner of the goods specified in it, so as to make a sale or pledge by him of such goods or bill of lading valid, unless the person to whom the goods are sold or pledged has notice that the seller or pledger is not the actual and *bonâ fide* owner of the goods.'

The unavoidable practice of delivering more than one bill of lading as an acknowledgment for the same goods makes it necessary to protect the master of the vessel against demands made for the delivery of the same in the possible case of different copies of the Bill of Lading falling into the possession of different persons. In such case all that is required from the master of the ship is, that he, acting in perfect good faith, and without any reasonable suspicion of fraud on the part of the person first making the demand for delivery, shall comply with the same to the person so first demanding the goods by the presentation of the Bill of Lading. The property in the goods represented by a Bill of Lading can be assigned like a bill of exchange by either a blank or a special indorsement, and as, in the event of the first mode being used, the document might accidentally fall into improper hands—a fact which the master of a ship could not reasonably be expected to discover—it is manifestly only justice thus to shield him from responsibility when acting without collusion. Should he, on the other hand, act either negligently or collusively in the matter, the law will compel him to make good their value to the real owner of the goods.

BILL OF RIGHTS is the name commonly given to the statute 1 William and Mary, sess. 2, chap. 2, in which is embodied the Declaration of Rights, presented by both Houses of the Convention to the Prince and Princess of Orange, in the Banqueting House at Whitehall, on the 13th of February, 1689, and accepted by their Highnesses along with the crown. The Bill of Rights was originally brought forward in the first session of the parliament into which the Convention was transformed; but a dispute between the two Houses with regard to an amendment introduced into the bill by the Lords, naming the Princess Sophia of Hanover and her posterity next in succession to the crown after the failure of issue to King William, which was rejected in the Commons by the united votes of the high church and the republican parties, occasioned the measure to be dropped, after it had been in dependence for two months, and the matter of difference had been agitated in several conferences without effect. The bill was however again brought in immediately after the opening of the next session, on the 19th of October, 1689, and the amendment respecting the Princess Sophia not having been again proposed, it passed both houses, and received the royal assent in the same shape in which it had formerly passed the Commons, with the addition only of a clause inserted by the Lords, enacting that the kings and queens of England should be obliged, at their coming to the crown, to take the test in the first parliament that should be called at the beginning of their reign, and that if any king or queen of England should embrace the Roman Catholic religion, or marry with a Roman Catholic prince or princess, their subjects should be absolved of their allegiance. This remarkable clause is stated to have been agreed to without any opposition or debate.

The Bill of Rights, after declaring the late King James II. to have done various acts, which are enumerated, utterly and directly contrary to the known laws and statutes and freedom of this realm, and to have abdicated the government, proceeds to enact as follows:—

'1. That the pretended power of suspending of laws, or the execution of laws, by regal authority, without consent of parliament, is illegal. 2. That the pretended power of dispensing with laws, or the execution of laws, by regal authority, as it hath been assumed and exercised of late, is illegal. 3. That the commission for creating the late court of commissioners for ecclesiastical causes, and all other commissions and courts of like nature, are illegal and pernicious. 4. That levying of money for or to the use of the crown, by pretence of prerogative, without grant of parliament, for longer time, or in other manner, than the same is or shall be granted, is illegal. 5. That it is the right of the subjects to petition the king, and all commitments and prosecutions for such petitioning are illegal. 6. That the raising or keeping a standing army within the kingdom in time of peace, unless it be with consent of parliament, is against law. 7. That the subjects, which are Protestants, may have arms for their defence, suitable to their condition, and as allowed by law. 8. That election of members of parliament ought to be free. 9. That the freedom of speech, and debates or proceedings in parliament, ought not to be impeached or questioned in any court or place out of parliament. 10. That excessive bail ought not to be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted. 11. That jurors ought to be duly empannelled and returned, and jurors which pass upon men in trials for high treason ought to be freeholders. 12. That all grants and promises of fines and forfeitures of particular persons, before conviction, are illegal and void. 13. And that for redress of all grievances, and for the amending, strengthening, and preserving of the laws, parliaments ought to be held frequently.'

It is added that the Lords and Commons 'do claim, demand, and insist upon all and singular the premises as their undoubted rights and liberties; and that no declarations, judgments, doings, or proceedings, to the prejudice of the people in any of the said premises, ought in anywise to be drawn hereafter into consequence or example.'

The act also recognises their Majesties William III. and Mary as King and Queen of England, France, and Ireland, and the dominions thereunto belonging; and declares that the crown and royal dignity of the said kingdoms and dominions shall be held by their said majesties during their lives and the life of the survivor of them; that the sole and full exercise of the regal power shall be only in and executed by King William, in the names of himself and her majesty, during their joint lives; and that after their decease the crown shall descend to the heirs of the body of the queen, and, in default of such issue, to the Princess Anne of Denmark and the heirs of her body, and, failing her issue, to the heirs of the body of the king.

The Declaration of Rights is understood to have been principally the composition of Lord (then Mr.) Somers, who was a member of the first, and chairman of the second, of two committees, on whose reports it was founded. The original draught of the Bill of Rights was also probably the production of his pen. In the latter especially there is very apparent a desire to preserve in the new arrangement as much as possible of the principle of hereditary succession to the crown. The legislature, for instance, in strong terms expresses its thankfulness that God had mercifully preserved King William and Queen Mary to reign over them 'upon the throne of their ancestors;' and the new settlement is cautiously designated merely 'a limitation of the crown.' Mr. Burke has, from these expressions, contended (in his 'Reflections on the Revolution in France') that the notion of the English people having at the Revolution asserted a right to elect their kings is altogether unfounded. 'I never desire,' he adds, in repudiation of the opposite opinion as held by one class of persons professing Whig principles, 'to be thought a better Whig than Lord Somers, or to understand the principles of the Revolution better than those by whom it was brought about, or to read in the Declaration of Rights any mysteries unknown to those whose penetrating style has engraved in our ordinances and in our hearts the words and spirit of that immortal law.'

The Declaration and Bill of Rights may be compared with the Petition of Rights (drawn up by Sir Edward Coke), which was presented by parliament to Charles I. in 1628, and passed by him into a law. (See PETITION OF RIGHT.)

BILL OF SALE, a deed or writing under seal, evidencing the sale of personal property. In general, the transfer of possession is the best evidence of ownership, but cases frequently occur in which it is necessary or desirable that the change of property should be attested by a formal instrument of transfer; and in all cases in which it is not intended that the sale shall be followed by delivery, such a solemnity is essential to the legal efficacy of the agreement. The occasions to which these instruments are commonly made applicable are sales of fixtures and furniture in a house, of the stock of a shop, of the good-will of a business (which of course is intransferrable by delivery), of an office, or the like. But their most important use is in the transfer of property in ships, which being held in shares cannot, in general, be delivered over on each change of part ownership. It seems to have been from antient times the practice, as well in this country as in other commercial states, to attest the sale of ships by a written document; and at the present day a bill of sale is, by the registry acts, rendered necessary to the validity of all transfers of shares in British ships, whether by way of sale or of mortgage. In general, bills of sale, being *ex vi termini* founded on valuable consideration, are available against the creditors of the seller; but by the operation of the bankrupt laws, goods remaining with the consent of the true owner in the order and disposition of the insolvent at the time of his bankruptcy, are deemed to be the property of the latter, and pass to his assignees to be distributed with the rest of his effects for the benefit of his creditors. Moreover, in all cases such a deed may be set aside on proof that it was a merely colourable and fraudulent expedient for defeating the claim of *bonâ fide* creditors, and the courts of law are in general little disposed to favour assignments of this kind, made secretly and without the notoriety which attends the actual transfer of possession.

BILLINGSGATE, a London market at the western extremity of the Custom-house, and the only wholesale market for supplying the metropolis with fish. It was established in 1699, and is held every day, except Sunday, when however mackerel is allowed to be sold. The market is so divided that oysters are sold in one part and other descriptions of shell-fish in another; red-herrings, cod, salmon, and eels, are to be found in the respective divisions of the market assigned for their sale. The two latter are the only kinds sold by weight. The English rivers and coasts furnish an almost inexhaustible supply of fish, and each season brings its peculiar kind, such as herring, salmon, cod, pilchard, mackerel, turbot, lobster, oyster, &c.

An article which enters largely into the consumption of the public should be supplied under as few restrictions as possible. It is partly with this view that fresh fish of all descriptions, taken by British subjects and imported in British vessels, may be imported into the United Kingdom without report, entry, or warrant. 'Lobsters and turbot are admitted free of duty, whether imported in British vessels or otherwise. Cured fish of every kind is admitted free of duty if caught, taken, and cured by British subjects; but fish which is taken or cured by foreigners, or brought in foreign vessels, except turbot and lobsters, as previously noticed, are admitted on payment of the following duties:—oysters, per bushel, 1*s.* 6*d.*; stock-fish, per 120, 5*s.*; sturgeon, per keg, not containing more than five gallons, 9*s.* The duty on caviare is 12*s.* per cwt., and on anchovies 2*d.* per lb.; but these articles are imported on account of merchants, and do not find their way into this market. Previous to 1829 the duty on anchovies was 1*s.* per lb.; and in 1821, this article produced a net revenue of 6396*l.* Since the reduction, the duty has averaged 1353*l.*; and it is probable that the public have not fully obtained the benefits of a reduced duty. Live eels are chiefly supplied by the Dutch, and the number of ship-loads entered at the Custom-house in a year, has varied during the last thirteen years from 59 to 83, viz. in 1824, 83; in 1830, 59; and in 1833, the number was 61. A duty of 13*l.* 1*s.* 3*d.* is charged on each ship-load. The supply of foreign oysters during the last thirteen or fourteen years, has varied, in different years, from a few bushels to an importation of 78,000 bushels, yielding a duty of 5846*l.* In the five years succeeding 1823 there was not a single cargo imported.

The duties on fish amounted in 1823, on anchovies, to 4109*l.*; eels 796*l.*; oysters 1730*l.*; on all the other sorts, 69*l.*; total, 3004*l.* In 1833, on anchovies 1478*l.* (having in the two previous years averaged only 800*l.*); eels 956*l.*; oysters 1349*l.*; other descriptions, no duty; total, 3783*l.*

For many years it was a heavy complaint that the supply of Billingsgate was engrossed by a monopoly. Colquhoun, in his 'Police of the River Thames,' published in 1800, asserts that the fishmongers at that time possessed a direct interest in the fishing-vessels, and kept them from market at their pleasure. This state of things no longer exists. The attempt to establish a second wholesale fish-market in London, in 1834, although it has proved unsuccessful, has doubtless occasioned some improvements at the older market; and under the direction of its present clerk such regulations have been laid down for the observance of the dealers of all classes, and what is of equal importance, have been executed with such strict vigilance, that the public now enjoy the advantages of a public market to a greater degree than at any former period. Of course great fluctuations in prices frequently and unavoidably occur. The earliest supply of mackerel has been sold at the rate of 7*s.* per fish, or forty guineas for the first boat-load. The second boat-load has perhaps fetched little more than one-fourth of this sum; and the same description of fish has been bought on the coast at a more advanced period of the season at the rate of sixty for a shilling. Contrary winds also keep back vessels considerably beyond their proper time, and thus often occasion their arrival in unusual numbers, so as to glut the market; but even these circumstances, which are apparently beyond control, are rendered less frequent than heretofore, by the employment of steam-towing vessels, which bring cargoes into the market in spite of contrary winds. In the same manner, the supply of salmon was formerly so limited, that only the wealthy could afford to partake of it, but it is now brought up by the Scotch steam-boats in little more than forty hours in such large quantities that it is sold at a price which brings it within the reach of most of the working classes. A few years ago the price of salmon was on an average 1*s.* per lb., while during the present season (1835) it has frequently been disposed of at the same rate per lb. as butcher's meat; and owing to the rapidity of the conveyance by steam-boats, was in a much better condition than when higher prices were demanded. The fishing-vessels reach Billingsgate during the night, and frequently a fleet of fifty or sixty sail is lying at the landing-place. At high-water a bell is rung, which is the signal for every vessel or boat whose cargo has been discharged, to remove into the river, in order to admit of others coming up to the market. A small sum is charged for the use of a moveable landing-place and other facilities which are afforded. Each vessel is bound to display a board, with the description of the cargo painted on it in legible characters, an arrangement which greatly facilitates the sale. Between the fishermen and the retail fishmonger there is an intermediate class of dealers, about thirty in number, termed salesmen, who alone occupy stalls in the market. The fishermen consign their cargoes to the salesmen, who are compelled to fix up in a conspicuous place a statement of the kind and amount of their stock, but they are not allowed to expose fish for sale before the ringing of the market-bell at five o'clock.

Fish of the best quality is always bought up immediately on the opening of the market by the dealers from the west end and those who supply the richest class of consumers. It may perhaps be alleged that the salesmen are so small a body that it would be easy, by collusive acts, to render the market comparatively a close one; but the business is transacted with so much rapidity, and the rush of buyers is so great, that the opportunity for effecting a sale would quickly be lost, if any other principle were endeavoured to be acted upon than that which the wants of the retail dealer and the amount of the supply jointly determine. The sale of oysters does not begin until six o'clock, as the throng of such a large number of persons as are engaged in various ways in vending this description of fish would interfere too much with the general market. The high price of fish is in a great measure owing to the system of credit which the retail dealer is compelled to give, the frequent losses he sustains, and to the practice of the patronage of noblemen and gentlemen being disposed of by their servants in consideration of a heavy per centage. These are abuses which may be rectified by individuals. It is of much more importance to ascertain if the poor derive all the advantages which they ought from the market being abundantly supplied, as they, in case of defective regulations or secret abuses, would be the greatest sufferers.

The fish brought to market consists frequently of four descriptions, viz., that of first-rate quality, that of good but secondary quality, of inferior but not unwholesome quality, and that which is in a state unfit for food. It is quite certain, that without proper attention the last mentioned would be purchased by the lowest description of dealers, and that it would be consumed by the poor. In order to obviate this evil, inspectors were appointed on the establishment of the market, but although their salaries above a century ago might be sufficient to compensate them for the duties which they then had to perform, they received no addition when their task had become twenty-fold more onerous, and the office in fact nearly sunk into desuetude. In 1832, when the public became alarmed on account of the progress of the cholera, attention was directed to the consequences which might be anticipated during the prevalence of such a disease from the use of unwholesome articles of diet, and particularly of tainted fish. On the recommendation of Mr. Goldham, the clerk of Billingsgate market, an adequate salary was given to the fish inspectors, and the advantages which the public derive from their labours may be estimatedby the following statement of the quantity of fish condemned in the course of a year as unfit for consumption:—Salmon 664, turbot 676, cod 1963, soles 38,300, herrings 1448, haddocks 6783, mackerel 4027, plaice, maids, and scate 124,160, salt fish 1861, whitings 1500, brill 413, lobsters 8653, crabs 300, total 190,748 fish; periwinkles and wilks 437 bushels, muscles 15, sprats 80, total 532 bushels; pickled salmon 126 kits, each containing 15 or 16 lbs.

In addition to the direct benefits arising to the public from so much unwholesome food being prevented from getting into the hands of the poor, the strict exercise of the duty of inspector has destroyed several practices which arose from the ease with which an unwholesome cargo might be sold. At present, instead of being brought to Billingsgate, a cargo of fish likely to become unwholesome by the time it reaches London, is sometimes cured or disposed of at some nearer port. It formerly happened that a family who had once or twice purchased bad fish, gave up the use of an article which there was some uncertainty in procuring in a proper state; but, in consequence of the vigilance of the inspectors, the consumption has increased considerably. The dishonest trader is also deprived of his vocation; and though he may still sell fish in a state unfit for food, yet, not having an opportunity of purchasing it in that state, he is more likely to be generally provided with a wholesome supply than when he purchased bad fish at a low rate, and exerted himself to dispose of it before he commenced vending his stock of a better quality. The permanence of the beneficial regulations for the sales at Billingsgate may probably now be reckoned upon, as any relaxation would have the effect of throwing business into a rival market, which could hardly fail to be created, and, if conducted on proper principles, would put down malpractices by wholesome competition.

The number of fishing-vessels entered at the Custom-house, London, in the year 1834, was 4257; a few years ago the number was 3827. In addition, a considerable supply of fish is brought up by vans from the various fishing towns on the coasts of Kent, Sussex, Suffolk, and Norfolk.

BILLITON, an island between the eastern coast of Sumatra and the south-western point of Borneo, in 3° S. lat., and 108° E. long. The south coast of Billiton is about 170 miles north of Batavia. The island is about fifty miles long from north to south, and forty-five miles broad from east to west, its form being nearly that of a square.

Billiton was included in the deed of cession by which the island of Banca was made over to the English by the sultan of Palembang in 1812. It was not thought advisable at that time to detach any European force to take possession of this new acquirement, and a native chief of Sumatra was sent from Banca by direction of the governor of Java to administer the government of Billiton in the name of the English East India Company. The native chiefs of the island offered considerable resistance to the establishment of this new governor, and although he at first succeeded in routing the insurgents and killing their leader, he was soon compelled to return to Banca in order to get assistance. Shortly after this time the possessions of the British in this quarter were given up to the government of the Netherlands, and it has since been thought necessary by the Dutch governor of Java to place a garrison on Billiton in order to check the piratical practices to which the inhabitants are addicted. Their European governors are accustomed to employ the natives in constructing light vessels of a peculiar form well adapted for revenue cruisers in those seas.

The inhabitants, who are said closely to resemble the natives of Banca, are supposed not to exceed from 2000 to 3000 in number; they cultivate rice, but not in sufficient quantity for their own subsistence, and food is consequently imported by them from Banca and Sumatra; the soil of the island is for the most part rocky and unproductive.

Our geographical knowledge of the interior of the island and even of its coast is very slight, and being principally derived from the information of natives is not much to be depended upon. A chart has been published by Major Court, which he constructed under the instruction of the Sumatran chief already mentioned, who had resided for many years in Billiton before he was sent as governor by the English authorities: from this chart it appears that the island is well watered, the mouths of several rivers being marked on every part of the coast.

The Malays trade hither for iron, the ore of which is abundantly found in the island: the metal is esteemed by them for making the blades of their creeses. The inhabitants employ themselves in converting some of this metal into nails and common tools, which are sold in the neighbouring islands. (Court's *Description of Palembang, Banca, &c.*; Count Hogendorp's *Coup D'Œil sur L'Ile de Java.*)

BILLOM, or BILLON, a town in France, in the department of Puy de Dôme, on a small stream that flows into the Allier; in 45° 43′ N. lat., and in 3° 20′ E. long. It is a town of considerable antiquity, but of few claims to notice. Before the Revolution it had a collegiate church, among the treasures of which were said to be a drop of the blood of Jesus Christ, and a piece of the wood of the true cross. These relics were solemnly paraded in an annual procession. At a very early period Billom possessed a celebrated school. In 1555, the Jesuits were established here by the bishop of Clermont, and their society became very rich. In their church was found, upon the expulsion of the order, a picture from which a vast number of engravings have been taken, representing religion under the emblem of a ship steered by Jesuits. After the restoration of the Bourbons, the Jesuits had again (from 1826 to 1828) the direction of the *Collège* of Billom, and seem to have modelled it as a seminary for the priesthood (*école secondaire ecclésiastique*). The population of Billom in 1832 was 4157 for the town, or 4746 for the whole commune.

BILLON, in coinage, is a composition of precious and base metal, consisting of gold or silver alloyed with copper, in the mixture of which the copper predominates. The word came to us from the French. Some have thought the Latin *bulla* was its origin, but others have deduced it from *vilis*. The Spaniards still call billon coin *Moneda de vellon*. Scaliger says the Greeks of the lower age called such money Βουλλωτήριον (*Boullotérion*).

According to Boutteroue (*Recherches curieuses des Monoyes de France*, fol. Par. 1666, p. 142), in France, billon of gold was any gold beneath the standard of twenty-two carats fine; and billon of silver all below ten pennies fine. Boizard (*Traité des Monoyes, de leur circonstances et dépendances*, 12mo. Haye, 1714, tom. i. p. 16) says that gold beneath the standard as far as twelve carats fine, and silver to six pennies fine, were properly base gold and base silver; but that it was the mixture under those quantities which made billon of gold and billon of silver, in consequence of copper being the prevailing metal. Boutteroue however speaks of two kinds of billon, one termed *haut-billon*, the other *bas-billon*, according to the proportion of copper introduced.

Black money, or billon, was struck in the mints of the English dominions in France, by command of the kings of England, for the use of their French subjects. Money of billon was common throughout France from about the year 1200. Hardies, authorised money of Edward the Black Prince, are also found of similar mixture. (See Pinkerton's *Essay on Medals*, edit. 1789, vol. ii. p. 79.) It was probably one consideration with Henry VIII. in coining base money, that it would circulate in France to his advantage. Henry VIII. and Queen Elizabeth both coined base money, approaching to billon, for the use of Ireland.

BILLS OF MORTALITY, are returns of the deaths which occur within a particular district, specifying the numbers that died of each different disease, and showing, in decennial or smaller periods, the ages at which decease took place. When the accuracy of these returns can be depended upon, facts of great importance in their actual application to the business of life may be deduced from them. From the mortuary tables, commenced at Geneva in 1566, which have been continued until the present time, it is ascertained that at the Reformation one-half of the children born died within the sixth year; in the seventeenth century, not till within the twelfth year; and in the eighteenth century, not until within the twenty-seventh year. Tables of this description, extending over a long period, mark the progress of a country in wealth and happiness; and the share which political causes have had in producing the results which they indicate, is a subject worthy of the highest consideration of the statesman and politician. The Northampton Tables of Mortality, also the Carlisle Tables, and the Swedish Tables, have served as the chief basis on which annuities, life insurances, and other calculations relating to the duration of human life, have been founded. The London Bills were commenced after a great plague in 1593. The weekly bills were begun in 1603, after another visitation of still greater severity; and since that time scarcely any improvement has been introduced into the mode of making them up. But imperfect as these documents are, there does not exist a complete collection of them, not even in the British Museum. In London, a parish is said to be within the Bills of Mortality when the deaths occurring within its limits are supposed to be carried to the account of the general mortuary tables published every year by the company of parish clerks. 'Within the Bills of Mortality' is therefore a local term, which has reference to a particular municipal division. This division has occasionally undergone some changes. At present it includes the City of London, the City and Liberties of Westminster, the Borough of Southwark, and thirty-four out-parishes in Middlesex and Surrey, the whole containing a population of 1,178,374. The following parishes in the metropolis are not comprised in this district:—St. Luke's, Chelsea, population, 32,371; Kensington, 20,902, St. Mary-le-bone, 122,206; Paddington, 14,540; and St. Pancras, 103,548;—total, 293,567. In the year in which the census was taken (1831) the number of deaths published in the annual Bill of Mortality was 25,337, or 1 in 46, on a population, as above stated, of 1,178,374. Now, as the rate of mortality for Middlesex is 1 in 41 (Rickman), it is clear that upwards of 3000 deaths occurred within the so-called London Bills of Mortality, which were unreported. Indeed, so irregular is the mode in which the system is conducted, that one parish, that of St. George, actually stated to be within the Bills of Mortality, had not sent in its returns for ten years preceding Dec. 1832. The annual number of deaths which at present appear on the London Bills is about 26,500. Nearly 900 of these are attributed to 'unknown causes,' and about 3000 to 'age and debility.' A medical analysis of the Metropolitan Bills is given in the 'Companion to the Almanac' for 1835. The manner of procuring the returns, and their defects in a medical point of view, are easily accounted for. On the death of an individual within the prescribed limits, intimation is sent to the *searchers*, to whom the undertaker or some relative of the deceased furnishes the name and age of the deceased, and the malady of which he died. No part of this information is properly authenticated, and it may either be true or false.* The appointment of searcher is generally made by the churchwardens, and usually falls upon old women, and sometimes on those who are notorious for their habits of drinking. The fee which these official characters demand is one shilling, but in some cases *two* public authorities of this description proceed to the inspection, when the family of the defunct is defrauded out of an additional shilling. They not unfrequently require more than the ordinary fee; and owing to the circumstances under which they pay their visit, their demands are generally complied with. In some cases they even proceed so far as to claim as a perquisite the articles of dress in which the deceased died. Such are the means at present employed in collecting medical and political statistics in the metropolis of England.

The mortuary tables of France, Prussia, Belgium, and other continental nations, are kept in a manner which ensures perfect accuracy in all their details, and are founded on medical testimony and documents of an authentic character. This accuracy is the result of a number of formalities, the compliance with which would be felt exceedingly irksome in this country. Still, it is to be hoped that some system may soon be devised in reference to this subject, which, founded on our national habits, and administered as far as possible with a due regard to the general spirit and temper of the country, may put the statesman and the political inquirer in possession of a mass of materials of great importance to the just comprehension of the great social questions which may arise for their consideration.

BILMA is a place in the great African desert, or the Sahara, situated between 18° and 19° N. lat. and about 14° E. long. It lies at some distance east of a rocky ridge of mountains of moderate height, which traverse the Sahara from north to south; these mountains begin on the north in Fezzan to the south of Murzook (about 25° N. lat.) and extend between the meridians of 16° and 13° to the south of the parallel of Bilma. Up to this point it seems to form an uninterrupted ridge, with a steep declivity towards the east. It appears to continue farther to the south, but with considerable interruptions through Soudan, in a south-western direction, and to join the upland of Africa in the parallel of Sackatoo ([illegible] N. lat.). This ridge, which separates the tribes of the Tuaricks, who inhabit the western country, from those of the Tibboos, who extend eastward towards Egypt, may also be considered as the boundary between the western and larger and the eastern and smaller desert of the Sahara. [See SAHARA.]

To the east of this ridge, at a distance of about 50 miles and upwards, rises a chain of isolated rocky hills, which are most numerous between 20° and 18° N. lat.: the country included by these two ridges forms, as it were, a large oasis, which is called Wady Kawas. Though in some way sheltered against the moving sands of both deserts, its surface is mostly covered with sand, and in other places is rocky. It contains a few patches of cultivated ground and groves of date-trees, besides many salt-lakes: it is inhabited by the Tibboos. Bilma, which is considered as the capital of this nation, lies towards the southern extremity of the oasis.

This place stands in a hollow and is surrounded by mud walls, which, as well as the houses within it, are mean and miserable. It owes its importance to the caravans which pass through it on the road between Murzook and Bornou, and still more to the salt lakes in its neighbourhood. About two miles north of the town between low sand-hills are several lakes, in which great quantities of very fine crystallized salt is collected. The time for gathering the salt is at the end of the dry season, when it is taken in large masses from the border of the lakes in sheets, which are put into bags and sent to Bornou and Soudan. A coarser kind of salt is formed into hard pillars and likewise sent to Soudan, where a ready market is found for it; a single pillar weighing eleven pounds fetches from four to five dollars. We are unable to form an estimate of the quantity of salt gathered in the neighbourhood of this place for want of information, but it must be considerable, as the Tuaricks, who live at a considerable distance and are not the proprietors of the soil, in one year carried off 20,000 bags of salt, of which a portion was sent to Soudan for sale. As the scarcity and high price of this commodity in the interior of Africa are well known, the importance of these salt lakes to the inhabitants of Bilma may easily be conceived. Dates are to be had in abundance at this place, but other provisions are scarce and dear, on account of the difficulty of transport. (Denham and Clapperton's *Travels; Map of* Berghaus.)

BILOCULI'NA (zoology), D'Orbigny's name for a genus of minute cephalopods; Les Milioles of Ferrussac.

BILSTON, a market-town in the parish of Wolverhampton, in Staffordshire, 113 miles N.W. from London, and about two miles S.E. from Wolverhampton. It was, until recently, accounted merely a village, and had no market or fair; but having risen to great importance, and possessing a population exceeded by few towns in the county, it obtained, in 1825, the grant of a market, held on Monday and Saturday, and of two annual fairs, toll free, held on Whit-Monday, and on the Monday preceding the Michaelmas fair at Birmingham. By the Reform Bill, Bilston, with other adjoining townships, was admitted to a participation in the franchise of Wolverhampton, and it contributes about 500 qualifying tenements to the general constituency. The number of houses was 2988 in 1831, when the population amounted to 14,492 persons, of whom 6996 were females. Bilston extends nearly two miles in length, and is situated upon a rising ground on the great road from London through Shrewsbury to Holyhead, and that from Birmingham to Manchester, Liverpool and Chester. By these roads and still more by the Birmingham and Staffordshire canal, which passes in the immediate vicinity of the town, and its various branches, it possesses the greatest facilities for transmitting its manufactures, and the heavy products of its mines and foundries, to the eastern and western as well as northern coasts, and to the interior of the country. Bilston owes all its importance to the introduction of the iron works: it previously consisted of only a few private houses; but standing in a district possessing considerable mines of coal, iron-stone, quarry-stone, and clay, it rapidly increased in extent and population. The town, which is irregularly built, contains a due proportion of good and substantial houses in its principal streets: the numerous dwellings of the people employed in the different works are dispersed in all directions in the neighbourhood. There are numerous furnaces for smelting iron-ore, with foundries, forges, slitting-mills, steam-engines, and the various works necessary for the preparation of iron. The town is intimately connected in interest with Wolverhampton. Their proximity and their increasing wealth and population render it probable that the buildin of the two towns will soon be united. The manufactures of tin, and of every kind of japanned and enamelled wares, with that of iron, from nails and wire to the heaviest and bulkiest articles, are largely carried on at Bilston. Coarse pottery is made with the clay which is found in the neighbourhood in much abundance. There is also here a deep orange-coloured and almost impalpable sand, which is much used in the casting of metals; the neighbourhood is also noted for a quarry, the stone in which lies in twelve horizontal layers, each of which increases in thickness from the surface downwards, so that the lowermost is about a yard in thickness. Plot mentions a person who got from this quarry a stone eight yards long, naturally so very even that it did not bevel or depart from the true level above an inch. Cisterns, troughs, &c., are made of the stone, some of which is curiously streaked with black. Plot also mentions that the grindstones dug at Bilston are much finer than those obtained in Derbyshire; they are used in sharpening thin edged tools, as knives, razors, &c.

The town contains two churches: that of St. Leonard was erected in 1826, in the place of one which was built about the middle of the last century: that which previously stood there was erected in the reign of Henry VI., and having become old and ruinous, was then taken down, with the exception of the tower. It accommodates 2000 people. The living is a perpetual curacy, in the jurisdiction of the dean of Wolverhampton, the income of which is stated in the recent returns at 635*l.* per annum. It is in the gift of the inhabitants. The other church, dedicated to St. Mary, is a handsome structure, erected in 1829, at an expense of 7223*l.*, in the later English style: it accommodates 1400 persons, and has 956 free sittings; the minister has an income of 83*l.* per annum. The Methodists, Baptists, and Independents have also places of worship in Bilston. A court of requests for the recovery of debts not exceeding 5*l.*

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* In No 97 of the 'Edinburgh Review,' a plan is given by which, at very little trouble or expense, the metropolitan Bills of Mortality might be rendered authentic and valuable registers.

has been established in the town. There is a charity school, in which a few boys are clothed and educated.

This town suffered a dreadful visitation of cholera in the months of August and September, 1832, the particulars of which have been impressively detailed in a pamphlet by its minister, the Rev. William Leigh. It appears, that 3568 persons were affected by the disease, out of which number 742 perished in the course of six weeks. The public sympathised with the inhabitants on this trying and afflicting calamity, and no less a sum than 8536*l.* 8*s.* 7*d.* was collected in behalf of the poor surviving sufferers. A useful and substantial building has been erected, called the 'Cholera Orphan School,' in which 450 orphan children are educated, part of whom, together with upwards of 100 widows, are still receiving a weekly payment out of the fund.

At Bradley, a hamlet in the township of Bilston, there is a phenomenon which has attracted much attention. A fire in the earth has now been burning for more than a century, defying every attempt which has been made to extinguish it. The inhabitants call it 'wild-fire.' It has reduced several acres of land to a mere calx: but this calx furnishes a very excellent material for the repair of the roads, and the workmen in collecting it often find large quantities of excellent alum. The surface is sometimes covered for the extent of many yards with sulphur, in such quantities as to be easily gathered. We are informed that the wild fire at Bradley is now nearly extinguished, the combustible matter being very much exhausted. (Shaw's *History and Antiquities of Staffordshire*; Plot's *Natural History of Staffordshire*; *Beauties of England and Wales*, vol. xiii.; *Boundary Reports: Communication from Bilston*, &c.)

BINCH, an old town in the province of Hainault in Belgium, situated on the high road from Mons to Charleroi, about ten miles east of Mons, and thirteen west of Charleroi.

Binch was built in 1110, and surrounded with walls. For a long time the Counts of Hainault were accustomed to give it as a dowry with their eldest daughters. In the war between Henry II. of France and Charles V. in 1554, it was taken by the former and burnt, but was soon after rebuilt. In 1578 it was twice taken, once by the Spaniards, and afterwards by the French under the command of the Duke of Alençon. It was afterwards retaken by the Spaniards, and remained in their possession until 1668, when, under the treaty of Aix-la-Chapelle, it was given up to France. Ten years later this town again came under the dominion of Spain by the treaty of Nimeguen.

Binch, which is built on the summit and half way down a hill, is remarkable for the picturesque spots which lie about it. The town is still surrounded by walls, and contains 760 houses, many of them of considerable elegance. One principal street traverses it from one end to the other. It contains a fine square ornamented with a fountain, a church, a college established in 1725 under the management of the Augustines, seven elementary schools, and an hospital. Previous to the burning of the town in 1554, it contained a fine castle, which was the favourite residence of Maria, Queen of Hungary, the sister of Charles V. The remains of this building at present consist of a scarp flanked by towers, which has been converted into a terrace promenade, offering very fine views: the rest of the site of the castle is occupied by kitchen-gardens.

Including the suburbs, La Roquette and Versailles, Binch, in January, 1830, contained 887 houses, occupied by 1215 families, consisting of 4878 individuals, divided as follows:-

	Males.	Females.	Total.
Single . . .	1,376	1,563	2,939
Married . .	797	816	1,613
Widows and widowers	121	205	326
	2,294	2,584	4,878

The town contains several manufactories. The chief branches of industry are connected with the leather trade, comprehending tanning, currying, and shoe-making, in which last 400 workmen are employed. On the 16th day of each month a fair is held for the sale of horses and cattle: there are besides three markets in each week—on Monday, Thursday, and Saturday.

(Vander Maelin's *Dictionnaire Géographique de la Province de Hainaut.*)

BINDRABUND, a large antient town on the west bank of the river Jumna, about thirty-five miles N.N.W. from the city of Agra, in 27° 34′ N. lat., and 77° 34′ E. long.

The superstition of the Hindus has invested Bindrabund with a high degree of sanctity, in consequence of its having been, according to their traditions, the residence of Krishna during his youth. Several places are pointed out as the scenes of various exploits of the god, and many pilgrims annually find their way hither to wash away their sins in some sacred pools. The antient Hindu name for the town (*Vrindavana*) signifies a grove of tulsi trees. Such a grove still exists, and from having been the favourite haunt of Krishna, has now become the resort of numerous religious mendicants, who waste their lives there in filth and indolence.

The town contains many temples, all of which are dedicated to Krishna: the largest, distinguished from the rest as the great cruciform pagoda, is remarkable for its size, and the elaborate style of its architecture. (Hamilton's *East India Gazetteer.*)

BIND WEED. [See CONVOLVULUS.]

BINGEN, a town picturesquely situated at the influx of the Nahe into the Rhine, in that part of the grand-duchy of Hesse (Hesse-Darmstadt), which is called 'the province of the Rhine,' or Rhenish-Hesse: it is included in the circle of Altzey, and lies between Mayence and Bacharach in the Rheingau, at the entrance of the narrow vale of the Rhine between Taunus and Hundsrück. The bridge of stone leading across the Nahe into Bingen is generally supposed to have been constructed by Drusus, the Roman general, and the ruins of the old fort of Klopp upon an eminence near the town, stand upon the site of the castle known to have been built by the same commander. This fort was destroyed by the French in 1639, with nearly the whole of the town. The 'Bingerloch' that adjoins it is a portion of the bed of the Rhine, which in former times was an object of great dread to navigators, from the sunken rocks that lay across it; there was then no other channel for the passage of vessels but a very narrow one, through which the pent-up waters were furiously whirled, with a roar so loud as to be heard at several miles distance. The rocks have of late years been removed by blasting, and the passage of the Bingerloch is no longer accompanied with any danger. On a little island not far from this spot stands the Mäusethurm or Mauththurm, a tower or antient toll-house, which is rapidly falling to decay. Bingen contains about 500 houses and 4500 inhabitants, has a gymnasium or public grammar-school, is the place of sale for the wines produced in its vicinity, particularly on the Scharlachberg (Mount-Scarlet), manufactures woollen-stuffs, &c., possesses a tannery, and carries on a brisk traffic upon the Rhine. The average breadth of this river, between Bingen and Coblenz, is 1600 feet: its depth between Bingen and Caub, which lies opposite to Bacharach, varies from six to twenty feet: and at Bingen its surface is at an elevation of 235 feet above the level of the sea. Its whole line from Bingen towards Coblenz abounds in the most varied and romantic scenery. Bingen is in 49° 55′ N. lat., and 7° 49 E. long.

BINGHAM, a parish and market-town in the wapentake of North Bingham, Nottinghamshire, 108 miles N.N.W. from London, and nine miles E. from Nottingham. The situation of the town is rather low, in the fertile vale of Belvoir: but being surrounded with high grounds, all in a state of rich cultivation, the views in the vicinity are pleasant and extensive. From the foundations of buildings being frequently discovered, from its giving name to the hundred in which it stands, and from its religious establishment and collegiate church, of a date nearly as old as the Conquest, it seems that Bingham was formerly a much more important place than at present. The market is held on Thursday, and the fairs are on the 13th and 14th of February, first Thursday in May, Thursday in Whitsun week (the holiday fair), May 31st, and 8th and 9th of November. The principal are those in February, at Whitsuntide, and in November.

The town, which consists chiefly of two parallel streets, is well paved; the market-place is extensive, and has commodious shambles. The houses have been erected with little attention to regularity: they are generally neat, and some of them handsome. The parish contained 372 houses in 1831; the population was 1737 persons, of whom 906 were females. The church, dedicated to All Saints, is a strong and heavy building, consisting of a nave and two side aisles, badly lighted, owing in a great measure to the upper part of the nave having been lowered, when a considerable part was taken down, and the whole repaired in 1584. The church has a curious early English tower, and a later belfry-story and spire. The cornice of the tower is curious, and there are the remains of statues which have served for pinnacles. The piers of the church, which are small, have varied foliage of excellent design and execution, some late early English, others very early decorated. The transepts and chancel are of later date than the nave; the chancel, which is lofty, spacious, and well lighted, is joined by a very fine arch to the body of the church. There are in this church both early English decorated and perpendicular windows. The church has accommodation for 800 persons; the living is a rectory in the diocese of York worth 1503*l.* per annum. Speed mentions a college of St. Mary in this place valued at the Dissolution at 40*l.* 11*s.*, but Dugdale says only 4*l.* 11*s.*; it seems to have been a guild or chantry. The Primitive and Wesleyan Methodists have places of worship in the town. Thomas Tealby, gent., who died in 1721-2, left 100*l.* to the parish, one half of the interest of which was to be employed in placing poor children at school. With this sum and 15*l.* additional from other bequests, the churchwardens bought lands, the proportion of the rents from which applicable to the last mentioned purpose is 7*l.* 10*s.* per annum, which is paid to the parish schoolmaster for instructing in reading ten poor children, boys or girls, of the parish of Bingham, who, as well as the master, are appointed by the parish authorities. The schoolmaster usually affords gratuitous instruction to a few additional children, and he has many pay scholars. The average number of children is about forty; but there were sixty-one in the school when the commissioners were there in 1828. The above endowment has been increased by 10*l.* per annum, being the interest of a share of 150*l.* in the Grantham Canal Navigation, which some inhabitants of the town bought with the proceeds of several plays which they acted for the benefit of the poor in the severe winter of 1783-4. This amount was not appropriated to purposes of education until 1827. (Throsby's Additions to Thoroton's *Antiquities of Nottinghamshire; Beauties of England and Wales*; Rickman's *Attempt, &c.*; *Twenty-first Report of the Commissioners for inquiring concerning Charities.*)

BINGLEY, a market-town and parish in the wapentake of Skyrack, in the West Riding of Yorkshire, 179 miles N.W. from London and 31 miles W.S.W. from York. The name signifies 'the field of Bingel or Bing,' the original proprietor in Saxon times. In Domesday it is called *Bingheleia*, and was one of thirty-two lordships which the Conqueror gave to Erneis de Burun. It had then six hamlets belonging to it. The manor afterwards went through a great number of hands, and was ultimately bought in 1668 by Robert Benson, Esq., whose son was created Lord Bingley by Queen Anne, whose descendant in the female line is the present proprietor. The town is pleasantly situated on an eminence between the river Aire and the Leeds and Liverpool Canal. It is tolerably well built, partly of brick and partly of stone, and consists chiefly of one long street, in which the market is held on Tuesdays. The market was granted by King John at the instance of the then proprietor, William de Gant. The fairs are on the 25th January and the 25th, 26th, and 27th of August. The parish of Bingley at present consists of four hamlets, namely, Bingley, Harden, Mickelthwaite, and Merton, the three first of which constitute one township, and Merton another. These hamlets provide for their own poor separately, but join in the support of the church according to their population. The number of houses in the township of Bingley, Harden, and Micklethwaite, was 1606 in 1831, and the population amounted to 8036 persons, of whom 4037 were females. This is 1861 higher than at the census of 1821, and the great increase is attributed to the extension of the worsted and stuff manufactures. The population of the whole parish was 9256. The manufacture of worsted yarn is carried on to a considerable extent in the town and neighbourhood, besides which there are some cotton-spinning concerns, a paper manufactory, and some trade in malt. The church dedicated to All Souls was given to the priory of Drax by William Paganell, the founder, in the time of Archbishop Thurstan, who held the see of York from 1119 to 1147. It is a plain and decent structure, accommodating 500 persons. It was probably restored in the reign of Henry VIII., which Whitaker demonstrates to have been the æra in which most of the churches of this district were enlarged and adorned. The devout liberality of the people, which had previously exhausted itself in benefactions to monastic establishments, then directed itself to the improvement of the parish churches, which had been comparatively neglected. The living is a discharged vicarage in the diocese of York. It is in the gift of the crown, and the annual income is estimated at 233*l.* in the recent report of the commissioners for inquiring into ecclesiastical revenues; but this is somewhat overrated; the income arises principally from Easter dues. There are also in the town chapels for the Methodists, Baptists, and Independents. In the reign of Henry VIII. William Wooler devised certain lands, the rents to be appropriated towards enabling a schoolmaster to teach grammar within the town of Bingley. The commissioners who inquired into the state of this charity in 1622 vested the power of appointing and removing the master, and of receiving the rents, in a committee of the inhabitants; and decreed that the master, besides being competent to bring up his pupils in the doctrines of Christianity, must be 'of a virtuous and reformed course of conversation, no light or disordered person, and industrious and diligent in teaching, and moderate and discreet in his corrections.' The endowment, as increased by subsequent benefactions, produced about 375*l.* per annum at the time of the commissioners' visit; the income is received by the master, who also occupies a good house and garden belonging to the institution; but the master has to pay 45*l.* out of the entire amount to the poor, and gives a salary of 80*l.* to the usher. The net income to the master, after paying the charities to the poor and the usher, does not now exceed 250*l.* The Charity Commissioners, who were there in 1826, say, 'the present master used to receive and educate boarders, but has lately discontinued to do so. In his time the school has been attended occasionally by between twenty and thirty free scholars at a time, but there were ten free scholars only in the school at the time of this inquiry. The boys are taught reading, writing, and accounts, at a moderate charge, and they are instructed in English and in the principles of religion.' We are informed that from twenty to thirty free scholars is the general number attending the school; the circumstance of there being only ten at the time of the Commissioners' inquiry was a rare occurrence. The school is strictly a grammar-school; and writing and accounts are only taught for the accommodation of the inhabitants. There is also a large national school in the town. (Whitaker's *History of Craven*; *Beauties of England and Wales*; *Seventeenth Report of the Commissioners for inquiring concerning Charities*; *Communication from Bingley*, &c.)

BINNACLE, an article used on board ship which contains the compass. It is placed next the steersman, and is divided into compartments for containing an hour-glass and a lamp. In order that the compass may remain unaffected by any local cause, the binnacle is not put together with nails or any iron work. Bittacle, being an abbreviation of the French word *habitacle*, a small habitation, was the name formerly given to this article, and it is so called in Johnson's Dictionary; but it is now written binnacle.

BINO'CULUS (zoology), Geoffroy, Leach; *Apus*, Scop., Cuv., Latr.: *Limulus*, Mull. Lam.; *Monoculus*, Linn. Fabr. Of these names, *Apus* is that now generally applied to a genus of phyllopodous crustaceans inhabiting fresh-water ditches, pools, and stagnant waters. They are gregarious and occur often in innumerable quantities. Sometimes whole swarms are swept away by violent winds, and have been seen to fall like rain. The spring and the commencement of summer are the seasons when they are most commonly found; and they often appear suddenly in great numbers in accidental rain-water puddles where they never have been before seen, as well as in ponds. They grow rapidly, feed freely on tadpoles, are all provided with eggs, though naturalists have not as yet been able to distinguish the sexes, and some consider that they can reproduce the species without the aid of a second individual. The eggs are supposed to preserve the living principle for a long time in a dry state; and this would account for their sudden appearance in great numbers in places where a fall of rain has formed a pool in a situation previously dry. They gradually arrive at the perfect development of their organs by a succession of moults. M. Valenciennes remarks that they are often devoured by the common wagtail. The generic name *Binoculus* appears to be unnecessary, and that given by Scopuli should be restored; the true

Limuli form a marine genus, making a natural group of different form and habits; Linnæus's genus, *Monoculus*, comprehends *Apus*, *Limulus*, and other crustaceans. Dr. Leach has formed a genus (*Lepidurus*) of those species which have a plate between the bristles of the tail, but, as Cuvier thinks, unnecessarily. The species figured is *Apus productus*, Latr. (*Lepidurus productus*, Leach; *Monoculus Apus*, Linn.) The genus occurs in England, France, and Europe generally.

[Apus productus.]

BINOMIAL, in algebra, means an expression which contains two terms, such as

$$a+b \qquad b-c\,x \qquad a^2\,x-p\,y$$

Any expression may be considered and used as a binomial in any sense in which it may be said to contain two terms: thus,

$$a+b+c\,x-e\,x$$

when put in the form

$$(a+b)+(c-e)\,x$$

is a binomial, the terms of which are $a+b$ and $(c-e)\,x$.

BINOMIAL THEOREM, by far the most important theorem in common algebra, first announced by Newton, as will presently appear. It is frequently called on the Continent the *binome de Newton*, and is engraved on his tomb in Westminster Abbey. In explaining this theorem, we shall consider ourselves as writing for those who have already such a knowledge of algebra as will enable them easily to recognise the various expressions of which we make use.

The binomial theorem, coupled with those preceding theorems from which it springs, is as follows:—

(1.) If a be denoted by a^1, $a\,a$ by a^2, $a\,a\,a$ by a^3, &c., then

$$a^m \times a^n = a^{m+n} \qquad \frac{a^m}{a^n} = a^{m-n}\ (m > n).$$

(2.) The equations in (1.) will hold good when the symbol a^0 is considered, provided that a^0 always signifies *unity*.

(3.) The equations in (1.) will hold good when negative exponents are employed, provided that

$$a^{-1} \text{ means } \frac{1}{a} \qquad a^{-2} \text{ means } \frac{1}{a^2}, \text{ \&c.}$$

(4.) The equations in (1.) will hold good when fractional exponents are employed, provided that

$a^{\frac{1}{2}}$ means the square root of a
$a^{\frac{1}{3}}$ „ „ cube root of a
$a^{\frac{1}{4}}$ „ „ fourth root of a &c.

and also that

$a^{\frac{2}{3}}$ means $(a^2)^{\frac{1}{3}}$ the cube root of a^2
$a^{\frac{4}{7}}$ „ $(a^4)^{\frac{1}{7}}$ the seventh root of a^4
$a^{\frac{m}{n}}$ „ $(a^m)^{\frac{1}{n}}$ the nth root of a^m

(5.) *Binomial Theorem.* In all the preceding cases, that is, whether n be whole or fractional, positive or negative,

$$(1+x)^n = 1 + n\,x + n\,\frac{n-1}{2}\,x^2 + n\,\frac{n-1}{2}\,\frac{n-2}{3}\,x^3 + n\,\frac{n-1}{2}\,\frac{n-2}{3}\,\frac{n-3}{4}\,x^4 + \text{\&c.},$$

the preceding being a series of an infinite number of terms in all cases, except only where n is a positive whole number. The pth term of the preceding expression is

$$n\,\frac{n-1}{2}\,\frac{n-2}{3}\,\ldots\ldots\,\frac{n-p+2}{p-1}\,x^{p-1},$$

which expresses any term after the second.

(6.) The preceding series is convergent, whatever may be the value of n, whenever x is less than 1. If x be greater than 1, it is always divergent; but the series remaining after any term may be expressed in a finite form, as follows:—Let V_1, V_2, V_3, &c. represent the several terms of the preceding series, then all the terms after the pth term are an algebraical development of a term of the form

$$V_{p+1}\ (1+\theta\,x)^{n-p},$$

where θ is a function of x, the arithmetical value of which is less than unity; so that

$$(1+x)^n = V_1 + V_2 + \ldots\ldots + V_p + V_{p+1}\,(1+\theta\,x)^{n-p}$$

$$V_1 = 1 \quad V_2 = n\,x \quad V_3 = n\,\frac{n-1}{2}\,x^2, \text{ \&c.}$$

The preceding theorem, though theoretically necessary to those who do not allow the use of divergent series, is of no practical use in the determination of $(1+x)^n$, since the determination of θ itself is the more difficult problem of the two.

We shall now give the early history of this theorem, with some remarks upon its demonstration.

Before the time of Vieta, no materials for its expression were in the hands of algebraists. That writer first used general symbols of determinate number: and in his works we find the first rude cases of the binomial theorem, though only in the results of simple multiplications, and without the discovery of any law of connexion among the coefficients. For instance, in his *Ad logisticen speciosam notæ priores*, we find the following:

'Sit latus unum A, alterum B. Dico A quad.-quadratum + A cubo in B quater, + A quadrato in B quadratum sexies, + A in B cubum quater, + B quad. quadrato, æquari A + B quad quadrato.' This we should now express thus:

$$(a+b)^4 = a^4 + 4\,a^3\,b + 6\,a^2\,b^2 + 4\,a\,b^3 + b^4.$$

The coefficients of the binomial theorem, in the case of a whole exponent, had long been derived from the method employed in what Pascal called the Arithmetical Triangle, and Briggs the *abacus πάγχρηστος*. To trace the history of this method would here lead us too far [see FIGURATE NUMBERS]; it must suffice to say that Lucas de Borgo, Stifel, Stevinus, Vieta, and others, all had in their possession something from which, if we did not know that such simple relations were difficult to discover, we should say a little attention would have enabled them to find the first glimpse of the binomial theorem, which, as we shall proceed to state, occurred to Briggs.

The *abacus* of the last-mentioned writer above alluded to is as follows (we have only reversed right and left):

1	1	1	1	1	&c.
2	3	4	5	6	&c.
3	6	10	15	21	&c.
4	10	20	35	56	&c.
5	15	35	70	126	&c.
&c.	&c.	&c.	&c.	&c.	

In which each number is formed by adding that on the left to that immediately above. On which (*Trigonometria Britannica*, 1633, preface, p. 22) Briggs remarks, that by ascending obliquely, the coefficients of the several powers are obtained; for instance, that 4, 6, 4 are the coefficients of the fourth power, 5, 10, 10, 5 of the fifth power, and so on. Briggs therefore knew the dependence of these coefficients on the preceding columns of figurate numbers, but not the algebraical expression for the nth of each class.

The next step was made by Wallis, in his *Arithmetica Infinitorum*, published in 1655. One of the great objects of this work was the determination of the areas of a class of curves, involving a problem amounting to the determination of

$$\int (1 - x^2)^m \, dx \quad \text{from } x = 0 \quad \text{to } x = 1$$

where m is a whole number. In this he deduces the algebraical expressions for any figurate number, but not in the form in which Newton afterwards gave. For example, he prefers

$$\frac{l^3 + 3l^2 + 2l}{6} \quad \text{to} \quad l \frac{l+1}{2} \frac{l+2}{3},$$

though it appears he knew the latter form. But he confined himself almost entirely to the *definite* integral, and did not exhibit his results in the form of an algebraic series. His work is broken into propositions, after the manner of the antients, and the simple form in which Newton afterwards enuntiated his results does not appear (that we can find) in his work. It was as follows, using the notation already adopted, or rather Newton expressed it as follows, and in the method of expression is the happy simplification which led him to the binomial theorem. In the first column is the expression of the ordinate of the curve in question; in the second the area included between the abscissa, the ordinates at its extremities, and the intercepted curve.

$(1 \pm x^2)^0$	x
$(1 \pm x^2)^1$	$x \pm \frac{1}{3}x^3$
$(1 \pm x^2)^2$	$x \pm \frac{2}{3}x^3 + \frac{1}{5}x^5$
&c.	&c.

Wallis had suggested that the method of determining the area of the circle depended upon finding a mean term between 1 and $\frac{2}{3}$ in the series 1, $\frac{2}{3}$, $\frac{8}{15}$, &c., made by taking the lower sign in the preceding set, and making $x = 1$ (he was considering the total areas). For the ordinate of the circle being $\sqrt{1 - x^2}$, the exponent of which is $\frac{1}{2}$, the mean between 0 and 1, the question reduced itself to this: If 0, 1, 2, &c., operated upon according to a certain law, give the results 1, $\frac{2}{3}$, $\frac{8}{15}$, &c., what will $\frac{1}{2}$ give when operated upon according to the same law? This interpolation he attempted, and obtained his well known and remarkable expression for the ratio of the circular area to the square on its diameter. But he could not succeed in the interpolation, and as he informs us himself in his *Algebra*, afterwards published in 1685, 'he gave it over as a thing not feasible,' one difficulty being that he could not imagine a series with more than one term and less than two, which it seemed to him the interpolated series must have. And here the question rested till it was taken up by Newton. The latter, in a celebrated letter to Oldenburg, dated October 24, 1676, speaking of some developments then newly discovered by Leibnitz, gives the binomial theorem. We shall give his own words (that is, translated from the Latin). 'In the beginning of my mathematical studies, when I happened to meet with the works of our celebrated Wallis, in considering the series, by the intercalation of which he exhibits the area of the circle and hyperbola.' .... He then goes on to describe what we have already alluded to....'for interpolating between these I remarked that in all the first term was x, and the second terms were in arithmetical progression....that the two first terms of the series to be intercalated should be

$$x - \frac{\frac{1}{2}x^3}{3} \qquad x \quad \frac{\frac{3}{2}x^3}{3}, \text{\&c.}$$

For the remaining intercalations I reflected that the denominators were in arithmetical progression; so that only the numerical coefficients of the numerators remained to be investigated. But these, in the alternate areas, were the figures of the powers of the number eleven, namely 11^0, 11^1, 11^2, 11^3, 11^4; that is, in the first 1; in the second 1, 1; in the third 1, 2, 1; in the fourth 1, 3, 3, 1; in the fifth 1, 4, 6, 4, 1. I inquired, therefore, in what manner all the remaining figures could be found from the first two; and I found that if the first figure be called *m*, all the rest could be found by the continual multiplication of the terms of the formula

$$\frac{m-0}{1} \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-3}{4} \times, \text{\&c.}$$

'This rule, therefore, I applied to the interpolation of the series. And since in the circle the second term is $\frac{1}{3} \times \frac{1}{2}x^3$, I made $m = \frac{1}{2}$.....whence I found the required area of the circular segment to be

$$x - \frac{\frac{1}{2}x^3}{3} - \frac{\frac{1}{8}x^5}{5} - \frac{\frac{1}{16}x^7}{7} - \frac{\frac{5}{128}x^9}{9} -, \text{\&c.}$$

'This was my first introduction to such meditations, and it would have gone out of my memory, had I not cast my eyes on some of my notes a few weeks since. *But when I had learned these things, I presently considered that the terms themselves* $(1-x^2)^0$, $(1-x^2)^1$, $(1-x^2)^2$, &c. *might be interpolated in the same manner as the areas generated from them*, and that nothing more was necessary except the omission of the denominators 1, 3, 5, 7, &c. in the terms expressing the areas: that is, that the coefficients of the quantity to be intercalated $(1-x^2)^{\frac{1}{2}}$, or $(1-x^2)^{\frac{3}{2}}$, or generally $(1-x^2)^{\frac{m}{n}}$ would arise from continual multiplication of the terms of the series,

$$m \times \frac{m-1}{2} \times \frac{m-2}{3} \times \frac{m-4}{4} \text{\&c.'}$$

Newton then proceeds to relate that he proved these operations by actual multiplication, and afterwards by applying the common rule for the extraction of roots, which gave the same results. He then states that he knew the common logarithmic series by the same method, and that being then much pleased with such investigations, he continued them until the appearance of Mercator's *Logarithmotechnia*; when, suspecting that Mercator had made the same discoveries (which however was not the case) before he (Newton) was of an age to write, he began to care little about prosecuting his researches.

It must be noticed that Newton had previously given the theorem itself in a former letter to Oldenburg, dated June 13, 1676, with more copious examples: the statement of it is as follows:—'The extraction of roots is much shortened by this theorem,

$$(\mathrm{P} + \mathrm{P}\,\mathrm{Q})^{\frac{m}{n}} = \mathrm{P}^{\frac{m}{n}} + \frac{m}{n}\mathrm{A}\,\mathrm{Q} + \frac{m-n}{2n}\mathrm{B}\,\mathrm{Q} + \text{\&c.'}$$

where A means the first term itself, B the second term, &c.

It must therefore be noticed, and similar things are common in the history of discovery, that several of those theorems which are now among the simple consequences of the binomial theorem, were in fact discovered before it. Thus Mercator and James Gregory had already used the logarithmic series, and Newton's discovery itself was not a consequence of any attempt at the general development of $(1 + x)^n$, but of the series for $\int (1 - x^2)^n \, dx$, which was (between certain limits) implied in the discoveries of Wallis.

Newton gave no other demonstration of his theorem except the verification by multiplication or actual extraction. The theorem of Stirling (commonly called after Maclaurin) and that of Taylor, being the general theorems of which the binomial is a particular case, soon diverted the attention of mathematicians. James Bernoulli first demonstrated the case of whole and positive powers by the application of the theory of combinations, in his treatise *De Arte Conjectandi*, published after his death in 1713. Maclaurin, in his fluxions, published in 1742, gave, as we consider, the first general demonstration: for though he employs fluxions, yet he had not, as he himself notices (page 607), 'made use of this theorem in demonstrating the rules in the direct method of fluxions.' In later times, when the avidity with which the results of the modern analysis were sought began so far to subside as to allow mathematicians to look at and discuss the grounds on which the several principles were established, a host of demonstrations appeared, each of which met with objectors: for it is a property of all the fundamental theorems of every branch of mathematics to be incapable of establishment in a manner in which all shall agree, though the theorems themselves are held indisputable. Among these demonstrations are those of James Bernoulli, Maclaurin, Landen, Epinus, Stewart, Euler, Lagrange, L'Huilier, Manning, Woodhouse, Hutton, Bonnycastle, Knight, Robertson, Creswell, Swinburne, and Tylecote. We shall not discuss the various objections, because they apply as much to the general doctrine of infinite series as to the binomial theorem in particular; and we must refer the reader to TAYLOR'S THEOREM. We shall however allude to the principal objections after we have given what appears to us a sufficient proof of the theorem, or rather after we have indicated the steps of such a proof.

Definition.—By $(1 + x)^{\frac{m}{n}}$ we mean (m and n being whole numbers) a quantity which, multiplied $n-1$ times by itself, gives $(1+x)^m$; and by the expansion of $(1+x)^{\frac{m}{n}}$, we mean an algebraical series of powers of x (positive or negative, whole or fractional) which has all the algebraical properties of $(1+x)^{\frac{m}{n}}$, and which, when it is convergent, has $(1+x)^{\frac{m}{n}}$ for its arithmetical limit or sum.

Theorem 1.—The well-known proof of the expansion of $(1+x)^m$, where m is a positive whole number, giving

$$(1+x)^2 = 1 + 2x + x^2$$
$$(1+x)^3 = 1 + 3x + 3x^2 + x^3 \text{ \&c.}$$

This theorem is not absolutely necessary, as we shall see.

Theorem 2.—If there be any function of a, namely, $\phi\, a$, which satisfies the condition

$$\phi(a) \times \phi(b) = \phi(a+b)$$

then $\phi(a)$ must be C^a where C is any quantity independent of a.

For the condition gives

$$\phi(a) \times \phi(b+c) = \phi(a+b+c)$$
$$\text{or } \phi(a) \times \phi(b) \times \phi(c) = \phi(a+b+c) \text{ \&c.}$$

which leads (supposing b, c, &c., to be severally equal to a) to the equations

$$(\phi\, a)^n = \phi(n\, a) \quad (\phi\, a')^m = \phi(m\, a'), \text{ \&c.}$$

where n and m are any whole numbers, and a, a', &c., any quantities whatsoever. Let us suppose $m\, a' = n\, a$, which gives

$$\phi(m\, a') = \phi(n\, a) \text{ or } (\phi\, a')^m = (\phi\, a)^n$$
$$\text{or } \phi\, a' = (\phi\, a)^{\frac{n}{m}} \text{ or } \phi\left(\frac{n}{m}\, a\right) = (\phi\, a)^{\frac{n}{m}}$$

Again, the supposed universality of the first equation gives

$$\phi(0) \times \phi(a) = \phi(a+0) = \phi(a)$$

or $\phi(0) = 1$: and also

$$\phi(a) \times \phi(-a) = \phi(a-a) = 1$$

$$\text{whence } \phi(-a) = \frac{1}{\phi\, a} \qquad \phi(-n\, a) = \frac{1}{\phi(n\, a)}$$
$$= \frac{1}{(\phi\, a)^n} = (\phi\, a)^{-n}$$

so that the equation $\phi(n\, a) = (\phi\, a)^n$ is true for all values of n: if a be $= 1$, this gives $\phi\, n = \{\phi(1)\}^n$, and $\phi(1)$ is not a function of the general symbol n: let $\phi(1) = C$, which gives the theorem asserted.

This theorem is the fundamental part of Euler's proof of the binomial theorem.

Theorem 3.—If the values of a and b may be made as near to equality as we please, then the limit of the fraction

$$\frac{a^n - b^n}{a-b} \text{ is } n\, a^{n-1}$$

In the case where n is a whole number, this is evident by the well-known theorem

$$(a^2 - b^2) \div (a-b) = a + b$$
$$(a^3 - b^3) \div (a-b) = a^2 + a\, b + b^2$$
$$(a^4 - b^4) \div (a-b) = a^3 + a^2 b + a\, b^2 + b^3 \text{ \&c.}$$

Let n be a positive fraction, for instance, $\frac{2}{3}$: and let $a = \alpha^3$, $b = \beta^3$. Then $a^{\frac{2}{3}} = \alpha^2$, $b^{\frac{2}{3}} = \beta^2$ and

$$\frac{a^{\frac{2}{3}} - b^{\frac{2}{3}}}{a-b} = \frac{\alpha^2 - \beta^2}{\alpha^3 - \beta^3} = \frac{\alpha + \beta}{\alpha^2 + \alpha\beta + \beta^2}$$

the limit of which, when a approaches to b, is $2\alpha \div 3\,\alpha^2$ or $\frac{2}{3}\alpha^{-1}$ or $\frac{2}{3}a^{-\frac{1}{3}}$ or $\frac{2}{3}a^{\frac{2}{3}-1}$. In the same way any other case may be proved.

Now let n be negative, say it is $-t$, where t is positive. Then

$$\frac{a^n - b^n}{a-b} = \frac{a^{-t} - b^{-t}}{a-b} = -\frac{1}{a^t\, b^t}\,\frac{a^t - b^t}{a-b}$$

of which the limit, by the two preceding cases (t being positive), is

$$-a^{-2t} \times t\, a^{t-1} \text{ or } -t\, a^{-t-1} \text{ or } n\, a^{n-1}$$

Theorem 4.—If $(1+x)^n$ admit of being expanded in a series of whole powers of x, then that series must be

$$1 + nx + n\frac{n-1}{2}x^2 + n\frac{n-1}{2}\,\frac{n-2}{3}x^3 + \ldots$$

Let

$$(1+x)^n = t_0 + t_1 x + t_2 x^2 + \text{\&c.}$$
$$(1+y)^n = t_0 + t_1 y + t_2 y^2 + \text{\&c.}$$
$$\frac{(1+x)^n - (1+y)^n}{(1+x)-(1+y)} = t_1 + t_2\frac{x^2 - y^2}{x-y} + \text{\&c.}$$

which two sides being always equal, the limits to which they approach, as x approaches to y, are equal; or

$$n(1+x)^{n-1} = t_1 + 2\, t_2 x + 3\, t_3 x^2 + \text{\&c.}$$

Multiply both sides by $1+x$, which gives

$$n(1+x)^n = t_1 + (2\, t_2 + t_1)\, x + (3\, t_3 + 2\, t_2)\, x^2 + \text{\&c.}$$

but by the original assumption

$$n(1+x)^n = n\, t_0 + n\, t_1\, x + n\, t_2 x^2 + \text{\&c. and}$$

therefore $\quad t_1 = n\, t_0$

$$2\, t_2 + t_1 = n\, t_1 \text{ or } t_2 = n\frac{n-1}{2}\, t_0$$
$$3\, t_3 + 2\, t_2 = n\, t_2 \text{ or } t_3 = n\frac{n-1}{2}\,\frac{n-2}{3}\, t_0$$
$$\text{\&c.} \qquad \text{\&c.}$$

But, making $x = 0$ in the original series, we find $t_0 = (1)^n = 1$. Whence follows the theorem.

Theorem 5. The value of $(1+x)^n$ is in all cases the series above investigated.

Consider that series as a function of n. Or let

$$\phi(n) = 1 + n\, x + n.\frac{n-1}{2}x^2 +, \text{\&c.}$$
$$\phi(m) = 1 + m\, x + m\frac{m-1}{2}x^2 +, \text{\&c.}$$

Actual multiplication will be found to give

$$\phi\, n \times \phi\, m = 1 + (m+n)\, x + \overline{m+n}\,\frac{m+n-1}{2}\, x^2 +, \text{\&c.}$$

or $\phi\, n \times \phi\, m = \phi(n+m)$.

Or we may dispense with this multiplication by remembering that since $\phi\, n$ is $(1+x)^n$ and $\phi\, m$ is $(1+x)^m$, when n and m are whole numbers, we must have, *in that case* (Theorem 1.),

$$\phi\, n \times \phi\, m = (1+x)^{m+n} = \phi(m+n)$$

but the result of a multiplication does not depend upon the values of the letters; if therefore $\phi\, m$ and $\phi\, n$ give $\phi(m+n)$ when m and n are any whole numbers, they give the same result when m and n are fractional or negative. But we do not yet know that $\phi\, m$ in the latter cases represents $(1+x)^m$. But by theorem (2.) it follows from $\phi\, m \times \phi\, n = \phi(m+n)$ that $\phi\, n$ is $\{\phi(1)\}^n$, or

$$\left(1 + 1\, x + 1\frac{1-1}{2}x^2 +, \text{\&c.}\right)^n \text{ or } (1+x)^n.$$

The greater part of the preceding proof is a concession to the *analytical* taste of the age, which requires that synthetical demonstration shall not appear in algebra. The theorem is demonstrated rigorously as soon as it shall be proved that from $\phi\, m \times \phi\, n = \phi(m+n)$, it necessarily follows that $\phi\, m$ is $\{\phi(1)\}^m$, and that the series above-mentioned satisfies the equation just named. And in reading the objections which have been made against the various proofs of the binomial theorem, the student must bear in mind that there is one class of objections against the actual logic of the processes, and another arising out of the conventions already alluded to. Against the demonstration of Euler, which consists in theorems 2. and 3. of the preceding, one says that it is 'tentative' ('*synthetical*' would have been the proper word): another that it is not 'algebraical,' meaning *analytical*, and assuming that algebra must be analysis. To all of which we should reply by another question, Is it logical?

The last attempt to produce an unanswerable demonstration of the binomial theorem was made by Messrs. Swinburne and Tylecote of St. John's College, Cambridge (Deighton, 1827). The details are much too complicated to describe, but the general result is the expansion of $(1+x)^n$ to any number of terms, with a finite expression for the remainder. This expression is however so complicated and long, that it can be of no use, except as proved that the remainder can be assigned by the ordinary operations of algebra. The proof is certainly, if the details be correct, of a 'logical' character, but it is far above the student. The remarks on other demonstrations in the preface, though dissenting entirely from many of them, we should recommend to the attention of the advanced student, as an exercise in the consideration of objections. At the same time we may recommend the remarks in Woodhouse's *Analytical Calculations.*

BIOGRAPHY, a modern term, and one indeed of only recent introduction, formed from the Greek βίος (*bios*), 'life,' and γραφὴ (*graphe*), 'writing,' and therefore signifying literally 'life-writing'. It is that department of literature which treats of the actions and fortunes of individuals. Biography is commonly distinguished from history by the latter term being confined to the narration of the actions and fortunes, not of individuals, but of the large communities of men called states and nations; but properly biography is only a branch of history. Thus Thomas Stanley, in the preface to his 'History of Philosophy,' observes, 'There are two kinds of history; one represents general affairs of state, the other gives account of particular persons, whose lives have rendered them eminent.' At the time when this was written (the middle of the seventeenth century) the word biography, we believe, had not been invented. Stanley adds, 'Homer hath given an essay of each; of the first in his Iliads, a relation of a war between different nations; of the second in his Odysseys, confined to the person of Ulysses.'

Owing to this their natural connection, history and biography are frequently combined in the same work. Indeed it is scarcely possible to write any history of a nation, which shall not consist, in a great part, of narratives or notices of the acts of individuals. The life of every eminent political character, and of every person who has been conspicuously engaged in the conduct of any department of public affairs, makes a portion of the history of his country. But besides such occasional threads of biography as are interwoven in almost every historical composition, a more formal intermixture, or association in the same work, of biographical details with national history, has sometimes been attempted. Thus, for example, to his 'History of the Age of Louis XIV.,' Voltaire has added a biographical appendix of the more celebrated writers, painters, musicians, sculptors, and other artists who lived in France during that period. So, in the very useful 'Synopsis of Universal History,' written in German by J. H. Zopf, of which there is an enlarged and otherwise improved translation into French (5 vols. 12mo. 1810), an account of the most eminent writers of every century is regularly added to the abridgment of political events. In many more regular histories, such as Henry's 'History of Great Britain,' Lord John Russell's 'History of the Affairs of Europe from the Peace of Utrecht,' the progress of literature is in a similar manner traced alongside of that of national affairs, in distinct chapters, containing accounts of the lives and writings of men of letters. There is indeed scarcely any other way than this of incorporating the history of literature with the history of political transactions; and it will therefore be more or less resorted to whenever the former subject is thought of sufficient importance to be included in the writer's scheme.

But biography has sometimes been intermixed with history on a more comprehensive principle. We have an example of this in one of the divisions of the 'Encyclopædia Metropolitana,' which is described in the plan of the work as containing 'Biography chronologically arranged, interspersed with introductory chapters of National History, Political Geography, and Chronology.' Here the history would appear to be subordinate to the biography. In the 'General Introduction' to the Encyclopædia, which was written by Mr. Coleridge, though much altered both by interpolation and otherwise after it left his hands, it is said, 'Biography and history tend to the same points of general instruction, in two ways: the one exhibiting human principles and passions acting upon a large scale; the other showing them as they move in a smaller circle, but enabling us to trace the orbit which they describe with greater precision.....Assuredly the great use of history is to acquaint us with the nature of man. This end is best answered by the most faithful portrait; but biography is a collection of portraits. At the same time there must be some mode of grouping and connecting the individuals, who are themselves the great landmarks in the map of human nature. It has therefore seemed to us that the most effectual mode of attaining the chief objects of historical knowledge will be to present history in the form of biography chronologically arranged. ....Thus will the far greater portion of history be conveyed, not only in its most interesting, but in its most philosophical and real form; while the remaining facts will be interwoven in the preliminary and connecting chapters.' Substantially identical with the plan here traced is that of a work, the first volume of which appeared at Glasgow in 1833, and which is still (1835), we believe, in course of publication, entitled, 'Lives of Eminent and Illustrious Englishmen, on an original plan, comprising the twofold advantage of a general English Biography and a History of England; edited by G. G. Cunningham.' In his preface the writer of this work appears to admit that its plan is more adapted to exhibit the popular attractions than the scientific principles or most important lessons of history.

Some of the most antient literary compositions in existence are works of biography, or of mixed biography and history. In the historical books of the Old Testament the narrative of public events is everywhere intermixed with the lives of individuals—patriarchs, lawgivers, captains, high priests, judges, kings, and other rulers or eminent characters. In some cases the composition is purely biographical, as the Book of Ruth.

Of professed biographical works, by far the greatest that has come down to us from the Greeks, is the 'Parallel Lives' of Plutarch, written in the second century of our æra. This work comprehends distinguished characters in all the departments both of military and civil life. Another collection of very small value is that of the 'Lives of Eminent Greek and Roman Commanders,' written by Cornelius Nepos, in the reign of Augustus. There is also the work entitled 'The Lives of the Twelve Cæsars,' by Suetonius, which however is necessarily in some degree of an historical character. It is a very indigested composition, to whatever class it may be considered as belonging. Suetonius likewise wrote a book of lives of celebrated grammarians, of which some fragments have been preserved. 'They who writ of philosophers,' says Stanley, 'exceeded the rest far in number, of whom to give a particular account will be unnecessary, because their works are not extant, and therefore we shall only name them: Aetius, Anaxilides, Antigonus, Antisthenes, Aristocles, Aristomenus, Callimachus, Clitomachus, Diocles, Diogenes Laërtius, Eunapius, Heraclides, Hermippus, Hesychius, Hippobotus, Ion, Idomeneus, Nicander, Nicias, Panaetius, Porrius, Plutarch, Sotion, and Theodorus. Of almost all these (which is much to be deplored) there remain not any footsteps; the only author in this kind for the more antient philosophers is Diogenes Laërtius; for the later, Eunapius. And to make the misfortune the greater, that which Laërtius gives us is so far short of what he might have done, that there is much more to be found of the same persons dispersed amongst other authors.' Diogenes lived in the beginning of the third century. At the end of the second and beginning of the third century we have Flavius Philostratus, who wrote a collection of biographies in two books, entitled 'Lives of the Sophists.' Of single biographical sketches the antients have also left us several, most of which seem to have been originally prefixed to editions of the works of the persons to whom they relate. Thus we have a Life of Homer attributed to Herodotus; and another of Plato, by Olympiodorus of Alexandria. Of all such single lives perhaps the most curious is that of Apollonius of Tyana, written in Greek by the Philostratus above-mentioned. An earlier life of Apollonius, which is now lost, is said to have been written by his disciple and contemporary Damis.

Since the revival of letters numerous biographical works have appeared in every language of Europe. Many of these have been accounts of the lives of single individuals, published either separately, or (in the case of authors) along with the works of the persons to whom they relate. In some cases the writer of such a life has aimed at making his work present a history, political, ecclesiastical, literary, or general, of the age to which its subject belonged. Among instances of such attempts may be mentioned Jortin's Life of Erasmus, Godwin's Life of Chaucer, and M'Crie's Life of Knox. As answering a similar end, though written apparently with a less particular regard to the same object, may be added one of the most amusing, and in some respects one of the most perfect, of all biographical works, Boswell's Life of Johnson. Others of these single lives are called autobiographies, or narratives which individuals have written of their own lives. A collection of the most celebrated autobiographies, which it is evident must in general have certain peculiarities strikingly distinguishing them from common biographical accounts, was published a few years ago in London by Messrs. Hunt and Clarke, in 34 vols. 18mo.

Cæsar's Commentaries of the Gallic and Civil Wars may be quoted as examples of autobiographical works in antient literature. Another example is afforded by the lost history of his own times, also entitled Commentaries, written by the Greek General Aratus, which Polybius mentions. [See ARATUS.]

The collections of Lives that have appeared in modern times have also been very numerous. Thus we have the various martyrologies, or accounts of the lives and deaths of the early Christian martyrs, by Ruinart (fol. Amsterdam, 1713), by Assemani (2 vols. fol. Rom. 1748), &c. There is also the great work of the Flemish Jesuits, Bollandus, Henschenius, &c., entitled 'Acta Sanctorum Omnium,' which was begun to be published at Antwerp in 1643, and is of the enormous extent of fifty-three volumes folio. The 16 volumes quarto of Tillemont's work, entitled 'Mémoires pour servir à l'Histoire Ecclésiastique de vi. premières siecles de l'Eglise,' (Paris, 1693, &c.) is also in the main a work of ecclesiastical biography. There are also the Lives of the Fathers, by St. Jerom, and by many succeeding writers; the Lives of the Popes by Anastasius, commonly called the 'Bibliothecary,' and by others in later times; the Histories of the various monastic orders, which are all in the greater part biographical; and such works as John Fox's 'Book of Martyrs, &c.' As examples of collections of lives of the members of different artificial orders of persons among ourselves, may be noticed such works as Ashmole's 'History of the Order of the Garter,' the various Peerages and Baronetages; Wilson's 'Biographical Index to the House of Commons,' (Lond. 1806); Ward's 'Lives of the Professors of Gresham College,' Wood's 'Athenæ Oxonienses,' which is an account of writers educated at Oxford, &c.

The lives of eminent statesmen, military commanders, admirals, navigators, travellers, highwaymen, and various other descriptions of persons, either in all countries, or in some one country, have frequently formed the subjects of distinct works. Boccaccio wrote a work in Latin, first published at Ulm in 1473, in folio, entitled 'Opus de Claris Hominibus et Mulieribus,' and in subsequent editions, 'De Casibus Virorum et Feminarum Illustrium,' being a history of unfortunate princes and princesses, and other persons of eminence. A translation of this work into English verse, from a very paraphrastic French version executed by Laurent de Premierfait, was composed by John Lydgate, who lived in the reign of Henry VI., under the title of 'The Tragedies gathered by John Bochas of all such princes as fell from their estates through the mutability of fortune since the creation of Adam until his time.' The poem is commonly known by the title of Lydgate's 'Fall of Princes.' Somewhat similar to the design of this work, and indeed confessedly borrowed from it, is that of the celebrated collection of poems, first published in quarto, in 1559, with the title of 'A Mirror for Magistrates, wherein may be seen, by example of others, with how grievous Plagues Vices are punished, and how frail and unstable worldly Prosperity is found, even of those whom Fortune seemeth most highly to favour.' But the narratives in the 'Mirror for Magistrates,' are all selected from English History, from which, as the editor in his dedication complains, Boccaccio had omitted to take any of his examples. A new edition of the 'Mirror for Magistrates,' which ranks so high in our old poetry, on account of the two admirable pieces which it contains,—the Induction and the Complaint of Henry Duke of Buckingham, by Thomas Sackville, the first Lord Buckhurst and first Earl of Dorset—appeared in 2 vols. 4to. in 1815, under the superintendence of the late Mr. Haslewood. Many biographical works have appeared, containing exclusively the lives of females. A collection of some of the earliest of these was published in a folio volume at Paris in 1521, under the title of 'Opera Diversorum aliquot Scriptorum de Claris Mulieribus ex editione Jo. Ravisii Textoris.' Two of the books of Brantome's Mémoires are occupied with gallant women (Dames Gallantes), and one with illustrious women. Menage wrote a work entitled 'Historia Mulierum Philosophorum.' There is a little book in French, called 'La Gallerie des Femmes Fortes,' by Pierre le Moyne, an edition of which, adorned with handsomely executed portraits, was published by the Elzevirs at Leyden, in 1660. There was published at Paris, in 3 vols. 12mo., in 1779, a 'Dictionnaire Historique Portatif des Femmes Celebres.' Bayle (Dictionnaire, Art. 'Urraca,' note E.) complains that writers of lives usually select only persons of distinguished merit, and that of women especially who have been the disgrace of their sex and their country no biographical account as far as he knew had appeared. 'Yet,' he continues, 'it is a subject which it would be well worth some writer's pains to handle. It might be treated after the fashion of Plutarch; I mean, that as that famous author has chosen the most illustrious Romans, and the most illustrious Greeks, in order to draw parallels between them, the queens and princesses of different nations might in like manner be compared together.' Such a comparison in regard to females of an opposite character from those here spoken of, is perhaps instituted in a work of which we know nothing more than the title, Holberg's 'Vies Paralleles de quelques Femmes Illustres.'

The most numerous class of biographical works is that of collections of literary biography. Of these many of the most important are mentioned under the article BIBLIOGRAPHY. Among others which are not noticed there, we may mention such works as the 'Pulcher Tractatus de Vita Philosophorum,' by Walter Burley (the Venerable Doctor, as he was called), 4to. Colon. 1472, a very rare volume; the 'History of Philosophy, containing the Lives, Opinions, Actions, and Discourses of the Philosophers of every sect,' by Thomas Stanley, which appeared in four successive volumes in 1655, 1656, 1660, and 1662, and has since been translated into Latin, as well as several times reprinted in English; the 'Historia Critica Philosophiæ' of Brucker, 5 vols. 4to. Leipzig, 17[illegible]-4, and second edition, 6 vols. 4to. 1767: the 'Theatrum Virorum Eruditione Clarorum' of Paul Freher, 2 vols. fol. Noriberg. 1688; the 'Vitæ Virorum Eruditorum' of Melchior Adam, 2 vols. fol. Francf. ad Moen. 1705; the 'Memoires pour servir à l'Histoire des Hommes Illustres dans la République des Lettres' of J. P. Niceron, 42 vols. 12mo. Paris, 1729-45; the 'Lives and Characters of the English Dramatic Poets,' by Gerard Langbaine, 8vo. Lon. 1698; the 'Biographia Dramatica' of D. E. Baker, first published in 1764, the best edition of which is that published by the late Mr. Isaac Reed, in 2 vols. 8vo. in 1782; the 'Lives of the English Poets,' by Dr. Johnson, &c. Under the same head may be mentioned Vasari's 'Lives of the most eminent Painters, Sculptors, and Architects,' first published at Florence in 2 vols. 4to. in 1550, and repeatedly since with many additions; the Dictionary of Artists of Pelegrino Antonio Orlandi, first published at Bologna in 4to. in 1719, under the title of 'Abecedario Pittorico;' Horace Walpole's 'Anecdotes of Painting in England and Catalogue of Engravers,' forming in all 4 vols. 4to. 1761-1771; Pilkington's 'Dictionary of Painters,' 4to. 1770, and 2 vols. 8vo. 1829; and other works of a similar description of later date.

Of the principal collections of exclusively British biography an account is given in the preface to the first edition of the 'Biographia Britannica.' The writer mentions the 'Catalogus Scriptorum Ecclesiæ,' composed by John Boston, a Benedictine monk of St. Edmondsbury, in the reign of Henry IV. (which was never published, and of which there are but few manuscript copies extant); the 'Commentarii de Scriptoribus Britannicis' of John Leland, prepared in the reign of Henry VIII., but first published at Oxford in 2 vols. 8vo. in 1709; John Bale's 'Scriptorum Illustrium Majoris Britanniæ Catalogus,' the first part of which was published at Ipswich, and the same year at Wesel, in 4to. in 1549: the first complete edition appeared at Basel in the same form in 1557; the treatise entitled 'De Academiis et Illustribus Angliæ Scriptoribus,' by John Pits, the first volume of which (the only one that was ever given to the world) was published in 4to. at Paris in 1619; the 'Historia Ecclesiastica Gentis Scotorum' of Thomas Dempster, 4to. Bonon. 1627, and of which a new edition was printed a few years ago by the Bannatyne Club of Edinburgh, a work of no authority, or rather indeed a mere romance; Sir James Ware's work, 'De Scriptoribus Hiberniæ,' 4to. Dublin, 1639, also translated into English, with a continuation, in the editions of his collected works published in 1739 and in 1764; and Fuller's 'Worthies of England,' folio, 1662. The first edition of the 'Biographia Britannica,' or the Lives of the most eminent persons who have flourished in Great Britain and Ireland from the earliest ages to the present times,' was begun to be published at London in 1747, and was completed in 5 vols. folio, in 1766. Most of the best articles in this work were written by Dr. John

Campbell, the author of the 'Political Survey of Great Britain;' among the other writers were the Rev. Thomas Broughton, William Oldys, and Philip Morant, author of the 'History of Essex.' A new and much extended edition of the 'Biographia Britannica' was begun in 1778 by the late Dr. Andrew Kippis, but was not carried farther than the fifth volume (folio), which brings down the alphabetical list of names only to the letter F. This edition, besides a great mass of new matter collected by the laborious editor, is enriched by communications from Lord Hailes, Lord Hardwicke (the author of the 'Athenian Letters'); Dr. Percy, Bishop of Dromore; Dr. Douglas, Bishop of Salisbury; Sir William Blackstone, Isaac Reed, and several other eminent literary persons of that time. Perhaps the most important body of British biography that has issued from the press, since the publication of the 'Biographia Britannica,' is the work of the late Mr. John Nichols, entitled 'Literary Anecdotes of the Eighteenth Century,' 9 vols. 8vo. Lond. 1812-1816, with the supplement entitled 'Illustrations of the Literature of the Eighteenth Century,' 5 vols. 8vo. 1817-28. Another work of considerable value in this department is that entitled 'Portraits of Illustrious Personages of Great Britain, with Biographical and Historical Memoirs,' by Edmund Lodge, Esq., 12 vols. 8vo. Lon. 1823-35. This last-mentioned work is on a somewhat similar plan to the 'Heads of Illustrious Persons of Great Britain,' engraved by Houbraken and Vertue, with memoirs by Dr. Birch, which appeared in 2 vols. fol. in 1752. Nor ought we under this head to omit Mr. Grainger's 'Biographical History of England,' which originally appeared in 2 vols. 4to. in 1769, but which was afterwards extended by the author to four 8vo. volumes. A continuation of Mr. Grainger's work, in 3 vols. 8vo., by the Rev. Mark Noble, appeared in 1806.

Of general biographical dictionaries, the 'Dictionarium Historico-Geographico-Poeticum,' of Charles Stephens, published in 4to. at Geneva in 1566, two years after the death of the author, may probably be regarded as the earliest: but this work, as its title indicates, contained many others besides biographical articles. The same remark applies to the 'Dictionarium Historicum, Geographicum, Poeticum, Gentium, Hominum, &c.,' of our countryman Nicholas Lloyd, which appeared in folio, first at Oxford in 1670, and again, greatly enlarged, at London in 1686. A much more extended work, of a similar description, is the 'Lexicon Universale Historico-Geographico-Chronologico-Poetico-Philologicum,' of Jo. Jac. Hofman; the first edition of which, in 2 vols. folio, was printed at Bâle in 1677. A Supplement, or 'Continuation,' as it is called, of the same extent, followed in 1683; and, finally, the two publications were incorporated in a new edition published at Leyden in 4 vols. folio, in 1698. Hofman's work may be considered as the origin of our modern encyclopædias. Our exclusively biographical dictionaries may be regarded as having been rather suggested by another work which appeared about the same time, 'Le Grand Dictionnaire Historique et Critique,' of Louis Moreri. This work, the first edition of which appeared in 1 vol. folio in 1673, although its contents were also very miscellaneous, was still of a more decidedly biographical character than that of Hofman. Of Moreri's Dictionary there have been about twenty editions in French, the last of which appeared at Paris in 1759, in 10 vols. folio. Upon Moreri's Dictionary was founded the 'Great Historical, Geographical, Genealogical, and Poetical Dictionary,' printed at London in 1694; the second edition of which, 'revised, corrected, and enlarged to the year 1688, by Jeremy Collier, A.M.,' appeared in 2 vols. folio in 1701. To these a third volume was added in 1705, containing a Supplement by Collier, and, in a separate alphabet, 'a Continuation from the year 1688 to this time, by another hand.' The whole was afterwards republished, with additions, in 4 vols. folio in 1727. Meanwhile the immortal 'Dictionnaire Historique et Critique' of Bayle, originally undertaken with the view of supplying the deficiencies and correcting the errors of Moreri, but which, in the course of preparation, soon assumed the form and character of an independent work, appeared in 2 vols. folio at Rotterdam in 1697. A second edition, enlarged to 3 vols., followed in 1702; and a third in 1722, after the death of the author, at Geneva, in 4 vols., the last being a supplementary volume consisting of additional articles which he had left ready for the press. The best of the old editions of Bayle is the fourth, published at Rotterdam in 4 vols. folio in 1720, under the superintendence of Prosper Marchant, and often called the 'Regent edition,' from being dedicated to the Regent of France, Philip, Duke of Orleans; but an edition in 17 vols. 8vo., has recently been produced at Paris, which, from the annotations it contains in correction of the original text, is now the most complete and valuable. Bayle's Dictionary, though it contains only a selection of names, is almost exclusively biographical. A very indifferent translation of it into English was published soon after the appearance of the original; but one much better executed was produced some years after by Peter Des Maizeaux, in 5 vols. folio, London, 1734-7. To Bayle's Dictionary should be added the Supplement to it by Chaufepié, published in 4 vols. folio at Amsterdam in 1750.

The first 'English General (exclusively) Biographical Dictionary' appeared in 1762, in 11 vols. 8vo. 'It is understood' (says the writer of an article 'On Universal Biographies' in the *London Magazine*, No. XII. third series) 'to have been projected and principally written by the Rev. Dr. Heathcote, who, assisted by the late Mr. Nichols, brought out a second edition of the work in 12 vols. in 1784. A third edition in 15 vols. appeared in 1798, under the superintendence of Mr. Tooke, the author of the 'History of Russia.' It is the last edition of this work which goes by the name of Chalmers's 'Biographical Dictionary,' which, having been begun to be published in 1812, was completed in 1817, in 32 vols. 8vo. Chalmers's 'Dictionary' is merely a hurried and tasteless compilation, and without any pretensions to be regarded as an authority. It is a better book however than the 'General Biographical Dictionary' of Drs. Aikin and Enfield in 10 vols. 4to., begun in 1799 and finished in 1815. Of our smaller English works of this description by far the best is that by the late Mr. John Gorton, published in 2 vols. 8vo. in 1828. This work is executed with very superior ability.

We have as yet however no English biographical dictionary at all to be compared with the great French work, the 'Biographie Universelle,' begun in 1810 and completed in 52 vols. 8vo. in 1828. To every article in this work the name of the writer is affixed; and the list of contributors, who are in all considerably above 300 in number, comprises the names of Biot, Delambre, Lacroix, Malte-Brun, Walckenaer, Sylvestre de Sacy, Sismondi, De Barante, Guizot, Cuvier, Victor Cousin, Chateaubriand, Benjamin Constant, Laplace, Mad. de Stael, Delille, and many others of the most eminent French writers now or lately living. To the 'Biographie Universelle' may be added the 'Biographie des Hommes Vivants,' in 5 vols. 8vo., or the 'Biographie Nouvelle des Contemporains,' in 20 vols., works of no great authority.

BION, a name common to many Greek authors, more or less known to the moderns. They are usually distinguished by their ethnical names. Clemens Alexandrinus (*Strom.* vi. p. 629. A.) mentions a Bion Proconnesius, who wrote an abridgment of the work of Cadmus the historian, and he is probably the person cited by Athenæus (II. p. 45): according to Diog. Laert. (iv. 58) he was a contemporary of Pherecydes of Syros.

Bion Borysthenites was a philosopher, who seems to have belonged to nearly all the different sects in succession. He was born some time near the 120th Olympiad, and is supposed to have died about 241 B.C. Olymp. 134. 4. He is mentioned by Strabo (i. 15) as a contemporary of Eratosthenes, who was born 275 B.C., and of Zeno the Stoic, who died 263 B.C. (Comp. Athenæus iv. 162. D.) His father was a freed-man, his mother a Lacedæmonian harlot, named Olympia. On account of some malpractices in his capacity of tax-gatherer, his father was sold with his whole family. Bion, who was then a child, was purchased by a rhetorician, who made him his heir, and after his patron's death he went to Athens, where he set up as a philosopher. He was first an auditor of Crates; then he turned Cynic; afterwards he attended the lectures of Theodorus, and finally became a disciple of Theophrastus. He was a great jester, and remarkable more for the point than for the good-humour of his witticisms. (See Horat. *Epist.* ii. 2, 60, and Cic. *Tuscul.* ii. 26.) He died at Chalcis in Eubœa. (See Diog. Laert. iv. 46-58.)

But the most celebrated person of this name is Bion Smyrnæus, the Bucolic poet; of whom however we know little more than that he lived at the same time with Theocritus and Moschus, of whom the former mentions him in his poems, and the latter has written an elegy on his death. He died by poison. An attempt was made many years ago by Giovanni Vintimiglia to deprive Smyrna of the honour of his birth, and to prove that he was born in Sicily, where he undoubtedly spent a great part of his life (see Lorenzo Crasso, *Historia de' Poeti Greci*, p. 90); but not only is his name mentioned by Moschus in connexion with the Smyrnæan river Meles, but we have also the express testimony of Suidas (*voc.* Θεόκριτος) that he was born at a village called Phlossë, near that city. His longest Idyll is a lament over Adonis; it is interesting to the English reader from its similarity in point of subject to the earliest of Shakspeare's poems, which however was probably suggested by Golding's translation of Ovid's Metamorphoses, as there does not appear to have been any translation of Bion extant in Shakspeare's time. (See Malone's *Shakspeare*, vol. i. p. 381., vol. xx. p. 10.) Bion's poems are generally published along with Theocritus and Moschus. The best edition is that of L. F. Heindorf, Berlin, 1810. We are not acquainted with any good English version of Bion. There is a German translation by J. H. Voss, Tübingen, 1808. Several other Bions are mentioned by Diogenes Laertius, but nothing is known about them.

BIPAPILLA'RIA (zoology), a genus of marine molluscs established by Lamarck upon a species figured and described in the manuscript notes of Péron. The following is Lamarck's definition:—body free, naked, of a shape between oval and globular, terminated posteriorly by a tail, and having at its superior extremity two conical papillæ, which are equal, perforated, and furnished with tentacula, three of which are to be found at each opening. The species *Bipapillaria Australis*, on which the genus is founded, was seen on the west coast of New Holland. Lamarck places this animal next to *Ascidia*, which is fixed, observing that the two openings are analogous to those of that genus. Blainville also arranges it thus, but observes that it is too little known to warrant any certainty that it differs from *Ascidia*.

BIPES (zoology), a genus of reptiles differing from *Seps*, inasmuch as that in *Bipes* the hind feet alone are visible, there being a total absence of the anterior extremities externally, though the clavicles and scapulæ (shoulder-blades) are in their proper situation, but hidden under the skin. [See SEPS.]

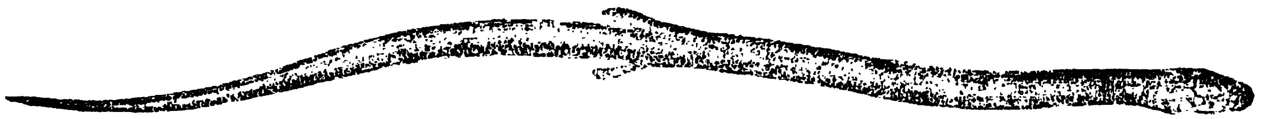
Cuvier dissected one of the species (*Bipes lepidopodus* of Lacépède), and found that, though its posterior and only apparent pair of feet had the external form of two oblong and scaly plates or processes, the integument covered a femur (thigh-bone), a tibia and fibula (leg-bones), and four metatarsal, or finger-bones, but no phalanges (terminal finger-bones). He also states that one of the lungs is less by one-half than the other.

This genus, an example of one of those beautiful gradations by which nature glides from one type of form into another, is intermediate between the saurians (lizards) and the ophidians (serpents). [See CHALCIDES and CHIROTES.]

* A single series of pores before the vent.

Sub-genus PYGOPUS.

Of this sub-genus, *Pygopus lepidopodus* (*Bipes lepidopodus*, Lacépède) is an example.



[Pygopus lepidopodus.*]

Lacépède describes the body and tail of this species as being nearly cylindrical, very slender, and a little like those serpents called by the French *Orvets*, of which our common *blind-worm* or *slow-worm* (*Anguis fragilis*, Linn.) is an example; and which, though without limbs, have some of the rudiments of such members in the skeleton. (See BLIND-WORM.) The upper part of the head of *Pygopus lepidopodus* is covered by seven large scale-plates disposed around an eighth, which is a little larger than the others. Each eye is surrounded by small scaly globules. The gape is sufficiently large, and the teeth are equal and small. The flat long tongue is without a notch. The auditory orifice is near the commissure of the lips. The scales which cover the upper part of the body are lozenge-like, striated and small, especially those which cover the most elevated part of the back; but the scales of the under part of the belly and the tail are hexagonal and smooth, and those of the two middle longitudinal ranks are larger than those of the lateral ranks. There are, before the vent, ten hollow tubercles pierced at the summit or apex (le bout), and so arranged as to present two portions of a circle, the concavity of which is turned towards the throat. At each extremity of the curve formed by these tubercles is to be seen a foot, in which no finger is to be distinguished externally, and which is surrounded by very small scales on its lower part, and by scales a degree less small on its upper surface.†

From this disposition of the scales Lacépède gave the species its name.

The colour is greenish, varied with some very small black blotches.

The following are the dimensions given by Lacépède. Each foot ten millimetres long, and four broad. Length of the tail 320 millimetres, and total length of the animal 470.

Lacépède's observation, though he prefaces it very modestly, is well worthy of attention. 'This reptile,' says he, like the other species of *Bipes*, ranks between the oviparous quadrupeds and the serpents; it is related to the latter by its general form, as well as by the figure, proportion, and distribution of the scales, while it approaches the former by its auditory apertures, and by the hollow tubercles near the anus.'

There is a Brazilian species, *Pygopus cariococca* (see Spix, xxviii. 2); but Cuvier thinks that another species recorded by Spix (*Pygopus striatus*, xxviii. 1) is only the immature state of the animal.

In the sub-genus *Bipes* of Merrem, *Scelotes* of Fitzinger, there is no series of pores before the vent, and the feet are each terminated by two unequal processes or fingers. Of this the small species found at the Cape of Good Hope, *Anguis bipes* of Linnæus, *Lacerta bipes* of Gmelin, is an example. Cuvier observes, that the Gronovian or Monodactylous *Seps* of Daudin, on which Merrem founded his genus *Pygodactylus*, was only an ill-preserved individual and that this subgenus (*Pygodactylus*) ought to be expunged, as Merrem himself had allowed. Cuvier also states that the *Seps sexlineata* of Harlan (*Sc. Nat. Phil.* iv., pl. xviii., f. 2) is only a variety of this species.

In the sub-genus *Lialis* of Gray, the head is elongated, the front flat, covered with small sub-imbricated scales, and the irides linear and vertical. The auditory opening is oblong and conspicuous.

The body is sub-cylindrical and attenuated. The dorsal scales are ovate, convex, and smooth. The two intermediate series of ventral scales are largest. There are two feet, posterior, obsolete, and acute, furnished with from two to three scales at the base. The vent is sub-posterior, and the præanal scales small. The sub-anal pores are disposed in pairs on each side.

Mr. Gray observes that this genus is very nearly allied to *Pygopus* of Merrem, but may be readily distinguished from it by the characters above given. In *Pygopus*, too, the head is short, more rounded in front, and covered with regular shields, the pupil is sub-circular, and the feet are broad, ovate, blunt, and covered with three rows of scales. The vent has five large oblong scales in front of it, and the sub-anal pores form a continuous series.

Lialis Burtonis (Gray), on which the sub-genus was founded, is of a pale ashy brown above, very minutely dotted with black, and beneath of a pale cocoa-brown. A white stripe passes on both sides from the upper lip above the eyes by the nape, and another broader one from the upper lip along the sides to the point of the tail. In the young state the lateral stripes of the neck are obsolete. The locality of the species is New South Wales (on the authority of Dr. Mair); and Mr. Gray, whose generic and specific descriptions are given above, observes, that when the epidermis is removed the colour is whitish, with lactescent stripes. There are specimens in the Chatham and British Museums.

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* Our cut is taken from the plate in the *Annales du Muséum*, which illustrates Lacépède's memoir; but Cuvier states that Lacépède's figure was taken from an individual whose tail had been broken and reproduced; and he further observes, that in all this class the proportion of the tail is not to be depended on as a character.

† These paddles or mud-oars indicate that the haunts of the animal must be miry places, through which such a structure of the posterior limbs would materially assist its progression.

BIQUADRATIC, an algebraic term, meaning of the fourth degree, or which contains the fourth power of any letter. Thus, to find the value of x in

$$x^4 + 3x^2 = x + 100$$

is the solution of a biquadratic equation.

The term means 'twice as high as a quadratic.' [See QUADRATIC.] Among the older algebraists the fourth power was also denoted by the terms *quadrato-quadratum*, *plano-planum*, *suesolidum*, *zenzizensic* (corruption of an Arabic word), &c. The word *biquadratic* is now wearing out of use, and it is becoming customary to say 'of the fourth degree' instead.

BIR, sometimes written **BEER**, the antient **BIRTHA** according to D'Anville, a town of Mesopotamia in Asiatic Turkey, in 36° 59′ N. lat. and 38° 7′ 15″ E. long., 144 miles N.E. from Aleppo. It is situated on the side of a very steep hill on the east bank of the Euphrates, which is here wider than the Tigris at Mosul, and may be loosely said to be at least equal to the Thames at Blackfriars Bridge. Pococke mentions some English gentlemen who found it 214 yards wide in September; and says generally that the bed of the river is about a quarter of a mile across, and that only half that breadth is occupied when the water is low. More precisely, the same English gentlemen measured the bed, and found it 630 yards wide. This seems a medium account: some travellers make the breadth of the river greater, and some much less; but it is to be considered that in the Euphrates the volume and breadth of the water is greatly increased or diminished with the season. The eastern bank of the river being here steep and the western flat, the rapidity of the current is very different on the opposite sides, but its general course here is slow. The depth of course varies with the season; but Mr. Buckingham states that when he was there, in the month of May, it did not seem to exceed ten or twelve feet. This has long been the point where caravans and travellers from Aleppo to Orfah, Diarbekir, Bagdad, and Persia cross the Euphrates, the passage being effected in large boats, about forty feet in length by ten broad, not more than two feet high at the stern, but not less than fifteen at the prow. There was formerly some trade carried on by the river between this place and Bagdad, but it has long been discontinued by this channel.

Bir is now become a place of considerable interest, as it is the point from which it is proposed to navigate the Euphrates by steam. Captain Chesney at first thought that Annah was the highest point to which steamers could attain. The water to Bir is indeed deep enough; and it is well known at Bagdad, that some years ago heavy ordnance from Constantinople, destined for Bagdad, was sent down the Euphrates from Bir on kelleeks or rafts, which when heavily laden draw more water than an ordinary steamer. The obstructions arise from rocks in the river, as mentioned by Thevenot, and now confirmed by Captain Chesney, who thought that to render the river navigable to Bir, either some of the rocks must be blasted, or some means devised to protect the paddles from occasional concussions against them, which, in places so limited, must be almost inevitable when of the ordinary construction outside the vessel. The means chosen to obviate this danger has been a peculiar construction in the steam-vessels destined for the navigation. The distance, by the river, from Bir to Basrah is, by this officer's computation, 1143 miles. In Mesopotamia itself the river is popularly considered to be of the general depth of two men.

There are perpendicular cliffs within and around the town in different directions. They are composed of a hard chalky stone, and have furnished the material with which the town is built. Thus the houses and the rocky slope on which they stand present to a spectator on the opposite side of the river a mass of glaring white which greatly distresses the eye when the sun shines, while the fine impalpable powder is no less annoying when the wind blows. The environs are, however, very pleasant. Niebuhr considered the town to contain 500 houses. Buckingham, a more recent visiter, says about 400, and from 3000 to 4000 inhabitants; but Captain Chesney says the houses are from 1800 to 2000. There are five mosques with tall minarets, a public bath, a caravanserai, a few coffee-houses, and a small but ill-supplied bazaar. The streets are narrow, but from the steepness of the site and the material of the buildings, they are more than usually clean. Except on the side towards the river, the town is surrounded by a wall of excellent masonry, with towers at the angles, and pierced with loop-holes throughout. There is an old ruined fortification in the centre of the town on a height of the rock; and all along the north end of the town, where a perpendicular cliff faces the water, are the walls and towers of an antient castle, which, though a ruin, still presents an imposing appearance. Maundrell and Pococke mention a curious collection of arms contained in this castle, such as were used before the invention of gunpowder: among these were bows, arrows, and slings. The cross-bows were about five feet long, and nearly straight. There were many bundles of long arrows with iron points, and others to which combustibles were variously attached, for the purpose of setting fire to the buildings of a town. The slings seemed adapted to some machine, and capable of throwing a stone ball one foot in diameter, some of which were seen in the castle. There were also large iron casques, and some coats of mail made of small pieces of thick leather sewed together. Many have considered these to be antient Roman weapons, and in Pococke's opinion they certainly agree with the descriptions of Ammianus Marcellinus; but as there are Arabic inscriptions on some of them, he concludes that they are the arms which happened to be in the castle when fire-arms were first invented. Niebuhr, whose visit was subsequent to that of Pococke, takes no notice of these weapons, and Buckingham, who heard different reports on the subject from the inhabitants, was unable to ascertain from personal examination whether or not they still remained there.

Bir belongs to the pashalic of Orfah; and the local government is administered by an aga, who has only a few personal attendants and no troops.

The inhabitants principally belong to two tribes of Turks, called Birk and Bashuan, who also extend five or six hours' journey along both banks of the river downward, and are described as a quiet and harmless people, not likely to disturb the contemplated navigation.

(Pococke's *Description of the East*, fol. vol. ii.; Niebuhr, *Reisebeschreibung*, &c., vol. ii., Copenhag. ed.; Thevenot's *Voyage au Levant*; Buckingham's *Travels in Mesopotamia*; Rennell's *Treatise on the Comparative Geog. of Western Asia*; Chesney's *Report on the Euphrates*.)

BIRBHOOM (*Virabhumi*, signifying, in Sanscrit, 'the land of heroes') is a district in the north-western extremity of the province of Bengal, about 24° N. lat., and 86° E. long. Birbhoom is bounded on the north by the district of Boglipore; on the east by Rajshahy; on the south by Burdwan and the Jungle Mahals; and on the west by Boglipore and the Jungle Mahals.

This district is hilly and in great part occupied by jungles: its area is estimated at about 7000 square miles, and its population at 700,000 Hindus and Mohammedans, in the proportion of thirty of the former to one of the latter.

The principal productions of the country are sugar, rice, and silk. Mines of coal are now profitably worked for the supply of Calcutta, and for the use of shipping. Iron-ore is found in strata mixed with clay. This ore contains a large proportion of metal, but the expense of smelting it is so great, that it cannot, at least at present, be brought into competition in the markets of India with iron of English production. Notwithstanding the presence of coal, the iron is smelted by means of wood. The forests in the neighbourhood of the smelting-works are of great extent, and so rapid is the power of re-production in that climate, that the consumption of fuel is very speedily compensated.

Soory, the modern capital of the district, is in 23° 54′ N. lat., and 87° 32′ E. long., fifty miles south-west from Moorshedabad. This town stands on high ground, and the country around it is open and undulating. The jungles to the westward offer great facilities for depredations on the part of several petty chiefs. The principal sufferers from these marauders are Hindu pilgrims, who proceed in great numbers to the temple at Deoghur. The amount of property of which these devotees are robbed is not great, but is nevertheless important to them on account of their poverty. These depredations are frequently accompanied by violence, and are even followed by loss of life. In 1828 there occurred within the district of Birbhoom ten cases of dacoity, two of which were aggravated by the commission of murder, and three were attended with wounding. In the same year there occurred two cases of theft with murder, and one with wounding; there were besides four cases of murder and seven of homicide, thirty-three cases of theft and robbery without personal violence, and one case of wounding in an affray. It was computed that in these fifty-eight cases there were 298 persons criminally concerned, of whom 287 were apprehended and brought to trial. In addition to these there were 1276 persons apprehended for minor offences in the same year.

BIRCH TREE. [See Betula.]

BIRCH, THOMAS, an historical and biographical writer, was born in London, Nov. 23rd, 1705. His parents were members of the Society of Friends, and his father carried on the trade of a coffee-mill maker, for which business the son was designed, but the strong desire which he displayed for reading and study overruled this intention. On the assurance, that if permitted to indulge in his favourite pursuits, he would not render the change in his mode of life burdensome to his father, he was allowed to take his own course, and for several years he acted as teacher in different schools. At each new engagement he endeavoured to obtain introduction into a school which afforded him superior opportunities for study; and in all of them he sedulously applied to the pursuit of knowledge, stealing many hours from sleep for this purpose. His efforts were not without success, and in his twenty-fourth year being qualified to take orders, he was ordained in the Established Church without having attended either of the universities, a circumstance at that time much less frequent than at present. He married in the same year in which he was ordained, and lost his wife in less than twelve months after their marriage.

Being recommended to the notice of lord-chancellor Hardwicke, then attorney-general, this individual never lost sight of him, and he owed to this recollection his advancement in the church. In 1734 he was elected a fellow of the Royal Society, and in 1752 he became one of its secretaries. In 1753 the university of Aberdeen conferred upon him the distinction of doctor in divinity; and he received a similar honour in the same year from Herring, Archbishop of Canterbury. Dr. Birch was most active and indefatigable in his literary pursuits. Distinguished by unwearied industry, rather than by acuteness and discrimination, he accumulated in the course of his life a vast mass of materials of great value to those who possess a superior understanding without the doctor's spirit of laborious research. The first work of importance in which he was engaged was the 'General Dictionary, Historical and Critical.' It consisted of ten volumes in folio, and included a new translation of Bayle, besides a vast quantity of new matter. The first volume appeared in 1734, and the last in 1741. In 1742 he published 'Thurloe's State Papers,' in seven volumes folio. He published 'Lives of Archbishop Tillotson, and the Hon. Robert Boyle,' in a separate form, and edited new editions of their works; also a new edition of Milton's Prose Works, and the Miscellaneous Works of Sir Walter Raleigh. In 1744 he commenced a series of biographical memoirs of illustrious persons of Great Britain, for a work published in folio by Mr. Howbraken and Mr. Vertue, two artists. Each memoir was accompanied by an engraving of the individual to whom it related. The work was published in numbers; the first volume was completed in 1747, and the second in 1752. In the list of his historical works are, 'An Inquiry into the share which King Charles I. had in the transactions of the Earl of Glamorgan;' 'A View of the Negotiations between the Courts of England, France, and Brussels, from 1592 to 1617, from original documents.' The same volume contained a 'Relation of the State of France, with the character of Henry IV.' In 1753 he published 'Memoirs of the Reign of Queen Elizabeth, from 1581 to her death.' In 1760, a 'Life of Henry Prince of Wales, eldest son of King James I.' His last biographical work was 'Letters, Speeches, Charges, and Advices of Lord Chancellor Bacon.' A Sermon which was preached before the College of Physicians, in 1749, appears to be the only discourses of his which has been printed. Besides his multifarious labours for the press, he transcribed a great number of volumes in the Lambeth library. He also maintained an extensive correspondence. His biographer remarks, that Dr. Birch's habit of early rising alone enabled him to get through so much work. He found time in addition for the enjoyments of society. Dr. Birch was killed by a fall from his horse, between London and Hampstead, Jan. 9th, 1766. He bequeathed his library and MSS. to the British Museum, of which he was a trustee. The remainder of his property, amounting only to about 500*l.*, he left to be invested in Government Securities, the interest to be applied in increasing the stipends of the three assistant librarians at the British Museum.

BIRD CHERRY, one of our native wild fruits. [See Cerasus.]

BIRD-LIME, a glutinous vegetable product, obtained principally from the inner bark of the holly, or from the berries of the misletoe, but also from other plants. It is prepared from the holly bark by bruising, long boiling in water, and fermentation; the mass is again boiled in water, and evaporated to a proper consistence. In different countries various processes are employed.

According to M. Bouillon Lagrange (*Annal. de Chim.* 56-24) the bird-lime of commerce is generally impure. When properly prepared from the holly it is of a greenish colour; its smell resembles that of linseed oil; its taste is bitter; it is adhesive, tenacious, and may be drawn out into threads. When dried by exposure to the air in thin layers it becomes brown, is no longer viscid, and may be reduced to powder; when moistened with water its glutinous property is not restored.

Water does not dissolve bird-lime, but separates from it some mucilage and extractive matter, and a little acetic acid. The alkalis dissolve it, and so does sulphuric æther very perfectly. Dilute acids soften it, and dissolve a portion; concentrated sulphuric acid blackens and carbonizes, while nitric acid renders it yellow, converting a part of it into oxalic and malic acids, and separates resin and wax; chlorine bleaches and hardens it; alcohol dissolves some resin and acetic acid.

When heated, bird-lime melts, swells, takes fire, and burns rapidly, but without giving any smell similar to that of burning gluten or animal matter.

Bird-lime differs from gluten in containing free acetic acid, in yielding mucilage and extractive matter, in the great quantity of resin which nitric acid separates from it, and in its solubility in æther, and not containing vegeto-animal matter.

M. Henry (*Journal de Pharmacie*, vol. x. p. 337) has particularly examined the bird-lime yielded by the berries of the misletoe, which differs in some respects from that of the holly. It consists of the peculiar glutinous matter, much wax, and gum; chlorophylle, with salts of potash, lime, and magnesia, and also oxide of iron. It is indeed probable that no two plants yield precisely the same products. It is stated that before use bird-lime is mixed with a considerable quantity of oil.

BIRD OF PARADISE (zoology). With no family of birds has fiction been more busy than with the *Birds of Paradise*. From one fabulist to another came the tradition (losing nothing, as is usual with traditions, in its descent), that these 'gay creatures of the element' passed their whole existence in sailing in the air, where all the functions of life were carried on, even to the production of their eggs and young. The dew and the vapours were said to be their only food, nor were they ever supposed to touch the earth till the moment of their death, never taking rest except by suspending themselves from the branches of trees by the shafts of the two elongated feathers which form a characteristic of this beautiful race. The appellations of *Lufftvogel*, *Paradyss vogel*, *Passaros de Sol*, *Birds of Paradise*, and *God's Birds* (to say nothing of *Phœnix*, a name which was applied to one of them), kept up the delusion that originated in the craft of the inhabitants of the eastern countries where they are found; for the natives scarcely ever produced a skin in former times from which they had not carefully extirpated the feet. Nor was it only the extreme elegance and richness of their feathers that caused these birds to be sought as the plume for the turbans of oriental chiefs; for he who wore that plume, relying implicitly on the romantic accounts of the life and habits of the bird, and impressed with its sacred names, believed that he bore a charmed life, and that he should be invulnerable even where the fight raged most furiously.

In vain did honest Pigafetta, who is supposed to have been the first who introduced these birds to the notice of Europeans, represent them as being furnished with legs; in vain was the same truth attested by Marcgrave, John de Laet, Clusius, Wormius, and Bontius (the last of whom observes on their crooked claws, and even asserts that they devour little birds, such as greenfinches), and referred to by Hernandez,– a fairy tale was not to be so put down. Aldrovandus himself was deceived by the birds brought over in the mutilated state above described, and joined in the cry against poor Pigafetta, charging him with falsehood. Jonston, in 1657, writes thus oracularly of the birds of Paradise. 'It is peculiar to them all to be without feet (although Aristotle asserts that no bird is without feet, and Pigafetta assigns to them feet a hand breadth in length);' and this he declares after Clusius had refuted the absurdity and had stated that they had been brought to Holland (where Jonston's book was printed) with their feet on; and after the publication of Tradescant's catalogue, wherein are mentioned among the 'whole birds' of his museum 'birds of Paradise, or Manucodiata, whereof divers sorts, some with, some without leggs.' And yet this same Jonston has no mercy on that part of the fable which asserts that they live on dew, are perpetually flying, and that their eggs are hatched in a natural cavity on the back of the male. 'Of a verity,' says the sage, 'they must necessarily require rest, and are with ease suspended to the branches of trees by those threads in their tails.'

Willughby and Ray treat these nonsensical stories as they deserve, and as was to be expected from their reputation as observers.

The high value set upon these birds awakened the cupidity and the fraud of the Chinese, who made up from parrots, parakeets, and others, artificial birds of Paradise, so clumsily, however, that it is difficult to suppose that Seba, who figures three of them in the 60th plate of his first volume, could have been taken in by the manifest imposition; but there is nothing in the text to show that his suspicion was even excited; and this is the more extraordinary, as he figures two of the real species (plate 38 and plate 63) with sufficient accuracy.

Linnæus, who has commemorated the fable of the want of feet in these birds by bestowing upon the species most extensively known the name of 'apoda,' because, as he observes, 'the older naturalists called it footless,' says that the food of this species consists of the largest butterflies.

In the last edition of the *Systema Naturæ* Linnæus gives but two species of the birds of Paradise, to which he applies the generic name, *Paradisea*. These two species are *Paradisea apoda* and *Paradisea regia*. In Gmelin's edition the number of species is increased to eight, but one of them is the Paradise-Grakle.

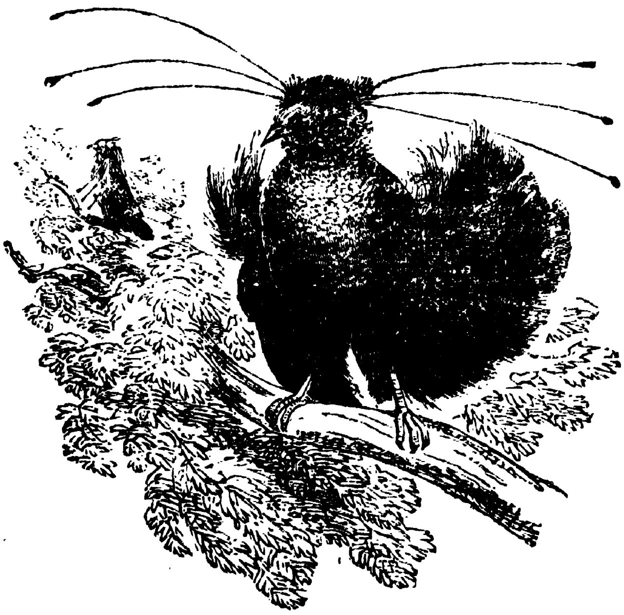
Ornithologists seem to agree in placing these birds either among the crows (*Corvidæ*) or in their immediate neighbourhood; and this, from the form of their beak and legs and from their habits to which we shall presently allude, appears to be their proper place.

Vieillot has divided the Linnæan genus *Paradisea* into the following genera:—

1. Parotia.

Beak furnished with short feathers to just beyond the middle, slender, compressed laterally, notched and curved at the tip; hypochondrial plumes long, broad, and loose.

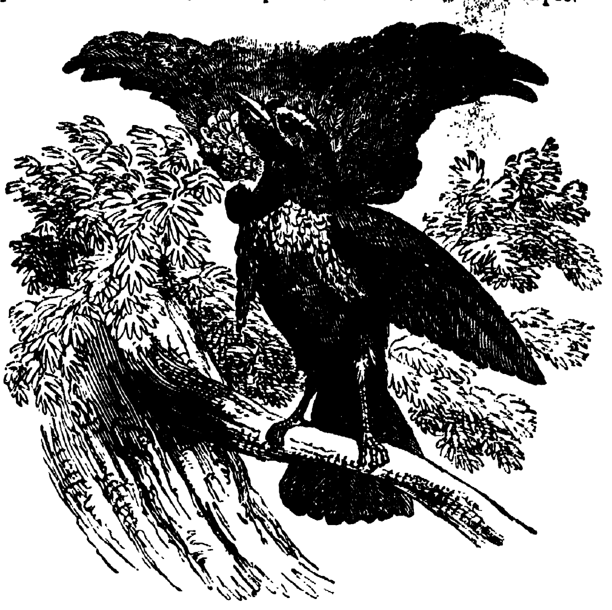
Of this genus, *Parotia sexsetacea*, *Paradisea aurea* of Gmelin, *Paradisea sexsetacea* of Latham, the *Sifilet* of Buffon, is an example. The figure represents a male.



[Parotia sexsetacea.]

2. Lophorina.

Beak furnished with elongated feathers to just beyond the middle, narrow above, slender, straight, notched and bent at the tip; feathers of the neck long and disposed in a wing-form. Of this genus, *Lophorina superba*, *Paradisea superba* of Latham, *Le superbe*, Buffon, is an example.

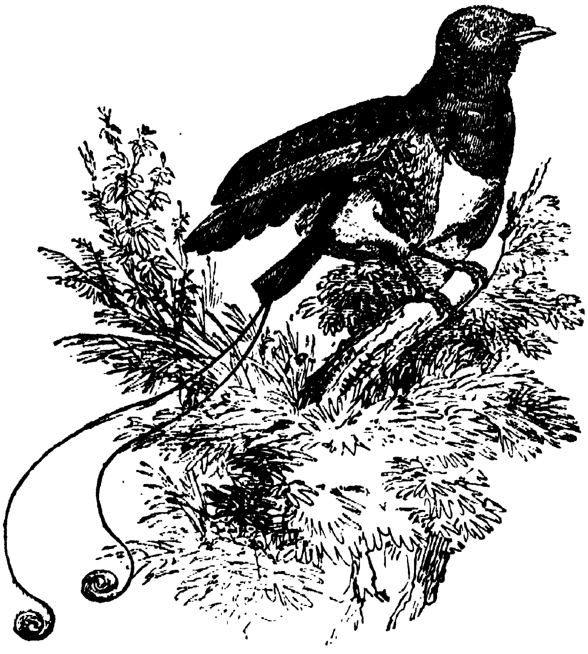


[Lophorina superba.]

3. Cincinnurus.

Beak furnished at the base with small feathers directed forwards, slender, convex above, a little compressed at the sides, finely jagged and bent towards the tip; hypochondrial feathers broad, elongated, and truncated.

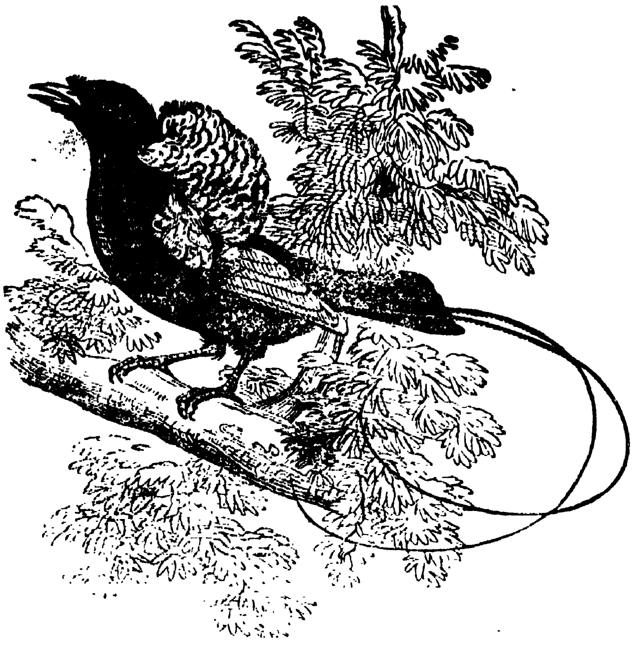
Of this genus, *Cincinnurus regius*, *Paradisea regia* of Linnæus, *King-bird of Paradise* of Petiver, who has this note,—'brought from the Molucca Islands, and rarely to be seen here but in the cabinets of the most curious, as with Dr. Sloan, and in the repository of the Royal Society,' and *Le Manucode* of Buffon,—is given as an example: the figure represents a male.



[Cincinnurus regius.]

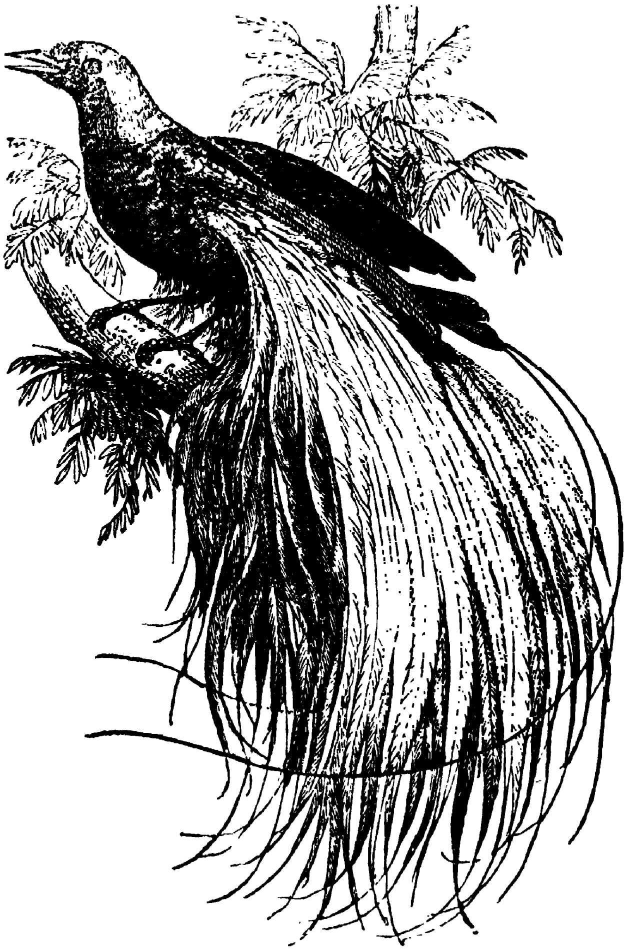
4. Samalia.

Beak robust, convex above, furnished at the base with velvet feathers, straight, compressed laterally, jagged towards the tip; hypochondrial feathers, very long, flexible, decomposed, or cervical plumes moderate and stiff. Of this there are two sections, the type being *Paradisea magnifica* of Latham, *Le magnifique* of Buffon.



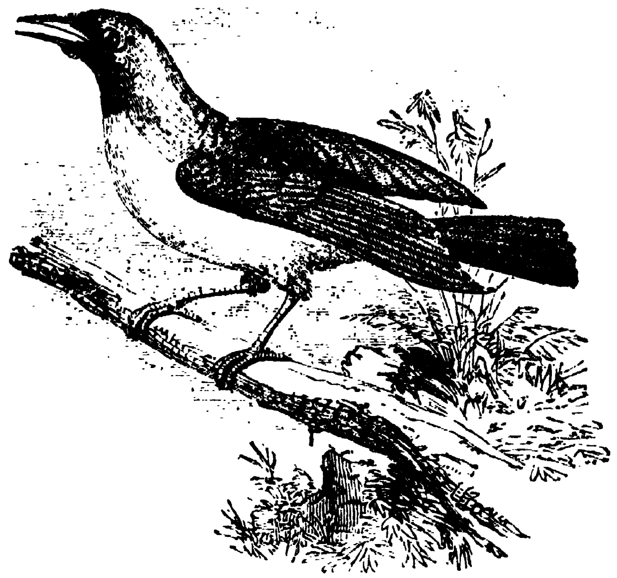
[Paradisea magnifica.]

But perhaps the most elegant of all these birds is that which is best known and most often seen, the Great Emerald, *Le grand émeraude* of the French, *Paradisea apoda* of Linnæus.



[Paradisea apoda, mas.]

The cuts, which are taken from Levaillant, may convey some very faint idea of the forms of these birds, whose beauty beggars all description. Even the magnificent works of Levaillant and Vieillot, splendid as they are, cannot represent the vivid and changing tints of the originals, though the former had the advantage of the pencil of Barraband, whose drawings have all the life and truth of portraits. To these works, and such as these, and to our museums, those who wish to have a distinct notion of what nature can produce in form and brilliancy of plumage, must repair. With the aid of those authors who have attempted a description in words, we shall endeavour to show the reader how the species here figured are clad. They are all inhabitants of New Guinea.



[Paradisea apoda, fem.]

Parotia sexsetacea, velvety-black.—Front and part of the top of the head furnished with small, fine, and stiff feathers, black and white, so as to form a greyish tuft or crest; each side of the head ornamented with three long black shafts or threads terminated by a black oval; feathers of the nape changeable golden green; flanks furnished with black, loosely-constructed feathers, which cover the wings and hide the tail feathers when the bird is in a state of repose, but are raised obliquely when it is in the least agitated; feathers of the throat large, scale-shaped, black in the centre, and bordered with iridescent green and gold; tail-feathers velvety with some long and floating feather-fibres; beak and feet black; length ten to eleven inches.

Lophorina superba.—Velvet black, iridescent with green and violet; front adorned with two little tufts of a sooty black; shoulders covered with long feathers, which, rising upon the back and inclining backwards, clothe the bird with a kind of mantle which partially covers the wings; nape and lower part of the breast brilliant changeable golden green; throat black, shot with ruddy copper-colour; the lower feathers longer than the others, extending on each side over the front of the neck and breast, and forming a scaly cuirass brilliant with a reflection almost metallic: abdomen, beak, and feet black; length eight inches and three-quarters: one of the most rare, if not the most rare.

Cincinnurus regius.—Upper parts ruby-red; front and part of the head of a beautiful velvety-orange; a small black patch at the internal angle of the eye; chin of a brilliant yellow, becoming deeper on the throat, which is terminated by a transverse stripe of brown and a broad belt of metallic green; lower parts white-grey sometimes mingled with green; flanks with broad grey plumes, traversed by two lines, one whitish, the other ruddy, terminating in a brilliant emerald-green; lower wing-coverts yellow; tail-feathers of a red-brown, the two intermediate feathers having their places occupied by two long, naked, red shafts, whose feather-fibres are rolled up at the extremity so as to form a kind of battledore (palette) pierced at the centre, of a brilliant brownish-green; beak azure blue; feet leaden grey; length from the end of the beak to the tip of the tail five inches and a half.

Lesson describes the female as being reddish-brown above, reddish-yellow below, striped with brown; tail rectilinear.

Paradisea magnifica.—Body above of a brilliant brown; base of the beak and front covered with short and thick feathers of a reddish-brown; top of the head and hinder part of it of an emerald-green; a double bundle of long feathers cut square inserted upon the neck and the upper part of the back; the first composed of narrow, raised, reddish feathers spotted with black towards the extremity; the second of longer feathers lying upon the back of a straw-yellow, deeper towards the end; great wing-coverts of a brilliant carmelite colour; quills yellow, brown interiorly; tail-feathers brown; throat and breast mingled green and blue: sides of the breast brown-green; abdomen greenish-blue; beak yellow bordered with black; feet yellowish-brown; two shafts turned circularly and terminating in a point, taking their origin on each side of the rump, extend to nearly a foot beyond the tail; length from the end of the beak to the extremity of the tail-feathers (*rectrices*) six inches and a half.

Paradisea apoda.– Body above, breast, and abdomen, marroon-brown; front covered with close-set feathers of a velvety-black, shot with emerald-green; top of the head and upper part of the neck, citron-yellow; upper part of the throat, golden-green; front of the neck, violet-brown; flanks adorned with bundles of very long plumes, with loose barbules of a yellowish white, slightly spotted towards the extremity with purpled red: these plumes extend far beyond the tail feathers. Two long horny and downy shafts, furnished with stiff hairs, terminated in a point and elongated, take their rise on each side of the rump, and extend somewhat circularly to a length of nearly two feet. Beak, horn-colour; feet, lead-colour; length from the end of the beak to the extremity of the tail-feathers (*rectrices*), thirteen inches.

Female.—Front and fore-part of the neck of a deep marroon-brown; head, neck, and back, reddish-yellow; wings and tail of a deep and brilliant marroon colour; belly and breast, white; no floating plumes.

This species, which is not so common as the little emerald (*Paradisea Papuensis*, Latham), inhabits the islands of Arou, Tidor, and Wagiou, as well as New Guinea.

We owe the most modern account of these birds in a state of nature to M. Lesson, who, though he deeply laments his short stay at New Guinea (only thirteen days), appears to have made the best use of his time.

'The birds of Paradise,' says M. Lesson, 'or at least the emerald (*Paradisea apoda*, Linn.), the only species concerning which we possess authentic intelligence, live in troops in the vast forests of the country of the Papuans, a group of islands situated under the equator, and which is composed of the islands Arou, Wagiou, and the great island called New Guinea. They are birds of passage, changing their quarters according to the monsoons. The females congregate in troops, assemble upon the tops of the highest trees in the forests, and all cry together to call the males. These last are always alone in the midst of some fifteen females, which compose their seraglio, after the manner of the gallinaceous birds.'

M. Lesson then gives the following extract from his journal, written on the spot. After observing that the birds of Paradise, with the exception of two species, were brought to the corvette, La Coquille, by the Papuans, and that the quantity afforded reason for supposing that these birds, so esteemed in Europe, were singularly multiplied in those countries, he thus continues:—

'The manucode* presented itself twice in our shooting excursions, and we killed the male and female. This species would seem to be monogamous, or perhaps it is only separated into pairs at the period of laying. In the woods, this bird has no brilliancy; its fine-coloured plumage is not discovered, and the tints of the female are dull. It loves to take its station on the teak-trees (*Arbres de teck*), whose ample foliage shelters it, and whose small fruit forms its nourishment. Its irides are brown, and the feet are of a delicate azure. The Papuans call it "saya."

'Soon after our arrival on this land of promise (New Guinea) for the naturalist, I was on a shooting excursion. Scarcely had I walked some hundred paces in those antient forests, the daughters of time, whose sombre depth was perhaps the most magnificent and stately sight that I had ever seen, when a bird of Paradise struck my view: it flew gracefully and in undulations; the feathers of its sides formed an elegant and aerial plume, which, without exaggeration, bore no remote resemblance, to a brilliant meteor. Surprised, astounded, enjoying an inexpressible gratification, I devoured this splendid bird with my eyes; but my emotion was so great that I forgot to shoot at it, and did not recollect that I had a gun in my hand till it was far away.

'One can scarcely have a just idea of the Paradise-birds from the skins which the Papuans sell to the Malays, and which come to us in Europe. These people formerly hunted the birds to decorate the turbans of their chiefs. They call them *mambéfore* in their tongue, and kill them during the night by climbing the trees where they perch, and shooting them with arrows made for the purpose, and very short, which they make with the stem (*rachis*) of the leaves of a palm (*latanier*). The campongs or villages of Mappia and of Emberbakène are celebrated for the quantity of birds which they prepare, and all the art of their inhabitants is directed to taking off the feet, skinning, thrusting a little stick through the body and drying it in the smoke. Some more adroit, at the solicitation of the Chinese merchants, dry them with the feet on. The price of a bird of Paradise among the Papuans of the coast is a piastre at least. We killed, during our stay at New Guinea, a score of these birds, which I prepared for the most part. . . . . .

'The emerald, when alive, is of the size of a common jay; its beak and its feet are bluish; the irides are of a brilliant yellow; its motions are lively and agile; and, in general, it never perches except upon the summit of the most lofty trees. When it descends, it is for the purpose of eating the fruits of the lesser trees, or when the sun in full power compels it to seek the shade. It has a fancy for certain trees, and makes the neighbourhood re-echo with its piercing voice. The cry became fatal, because it indicated to us the movements of the bird. We were on the watch for it, and it was thus that we came to kill these birds; for when a male bird of Paradise has perched, and hears a rustling in the silence of the forest, he is silent, and does not move. His call is *voike, voike, voike, voiko*, strongly articulated. The cry of the female is the same, but she raises it much more feebly. The latter, deprived of the brilliant plumage of the male, is clad in sombre attire. We met with them, assembled in scores, on every tree, while the males, always solitary, appeared but rarely.

'It is at the rising and setting of the sun that the bird of Paradise goes to seek its food. In the middle of the day it remains hidden under the ample foliage of the teak-tree, and comes not forth. He seems to dread the scorching rays of the sun, and to be unwilling to expose himself to the attacks of a rival. . . . .

'In order to shoot birds of Paradise, travellers who visit New Guinea should remember that it is necessary to leave the ship early in the morning, to arrive at the foot of a teak-tree or fig-tree, which these birds frequent for the sake of their fruit—(our stay was from the 26th of July to the 9th of August)—before half-past four, and to remain motionless till some of the males, urged by hunger, light upon the branches within range. It is indispensably requisite to have a gun which will carry very far with effect, and that grains of shot should be large; for it is very difficult to k an emerald outright, and if he be only wounded it is very seldom that he is not lost in thickets so dense that there is no finding the way without a compass.

'The little emerald, Paradise-bird, feeds, without doubt, on many substances, in a state of liberty. I can affirm that it lives on the seeds of the teak-tree, and on a fruit called *amihou*, of a rosy white, insipid and mucilaginous, of the size of a small European fig, and which belongs to a tree of the genus *ficus*.'

M. Lesson then goes on to state that he saw two birds of Paradise which had been kept in a cage for more than six months by the principal Chinese merchant at Amboyna. They were always in motion, and were fed with boiled rice, but they had a special fondness for cock-roaches (*blattæ*).

Bennett, in his 'Wanderings,' gives the following account of a bird of Paradise (*Paradisea apoda*) which he found in Mr. Beale's aviary at Macao, where it had been confined nine years, exhibiting no appearance of age:—

'This elegant creature has a light, playful, and graceful manner, with an arch and impudent look; dances about when a visiter approaches the cage, and seems delighted at being made an object of admiration; its notes are very peculiar, resembling the cawing of the raven, but its tones are by far more varied. During four months of the year, from May to August, it moults. It washes itself regularly twice daily, and, after having performed its ablutions, throws its delicate feathers up nearly over the head, the quills of which

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Cincinnurus regius, Vieillot. *Manucodiata*, or *manucodewata*, is an appellation common to all the birds of Paradise, and is said to signify at the Moluccas, 'The bird of God.'

feathers have a peculiar structure, so as to enable the bird to effect this object. Its food during confinement is boiled rice, mixed up with soft egg, together with plantains, and living insects of the grasshopper tribe; these insects when thrown to him, the bird contrives to catch in its beak with great celerity; it will eat insects in a living state, but will not touch them when dead.

'I observed the bird, previously to eating a grasshopper given him in an entire or unmutilated state, place the insect upon the perch, keep it firmly fixed with the claws, and divesting it of the legs, wings, &c., devour it, with the head always placed first. The servant who attends upon him to clean the cage, give him food, &c., strips off the legs, wings, &c., of the insects when alive, giving them to the bird as fast as he can devour them. It rarely alights upon the ground, and so proud is the creature of its elegant dress, that it never permits a soil to remain upon it, and it may frequently be seen spreading out its wings and feathers, and regarding its splendid self in every direction, to observe whether the whole of its plumage is in an unsullied condition. It does not suffer from the cold weather during the winter season at Macao, though exposing the elegant bird to the bleak northerly wind is always very particularly avoided. Mr. Beale is very desirous of procuring a living female, to endeavour, if possible, to breed them in his aviary.

'The sounds uttered by this bird are very peculiar: that which appears to be a note of congratulation resembles somewhat the cawing of a raven, but changes to a varied scale of musical gradations, as *he, hi, ho, haw*, repeated rapidly and frequently, as lively and playfully he hops round and along his perch, descending to the second perch to be admired, and congratulate the stranger who has made a visit to inspect him; he frequently raises his voice, sending forth notes of such power as to be heard at a long distance, and as it could scarcely be supposed so delicate a bird could utter; these notes are, *whock, whock, whock, whock*, uttered in a barking tone, the last being given in a low tone as a conclusion.

'A drawing of the bird of the natural size was made by a Chinese artist. The bird advanced stedfastly towards the picture, uttering at the same time its cawing congratulatory notes; it did not appear excited by rage, but pecked gently at the representation, jumping about the perch, knocking its mandibles together with a clattering noise, and cleaning them against the perch, as if welcoming the arrival of a companion. After the trial of the picture a looking-glass was brought, to see what effect it would produce upon the bird, and the result was nearly the same; he regarded the reflection of himself most stedfastly in the mirror, never quitting it during the time it remained before him. When the glass was removed to the lower from the upper perch he instantly followed, but would not descend upon the floor of the cage when it was placed so low. . . . . .

'One of the best opportunities of seeing this splendid bird in all its beauty of action, as well as display of plumage, is early in the morning, when he makes his toilet: the beautiful sub-alar plumage is then thrown out, and cleaned from any spot that may sully its purity by being passed gently through the bill; the short chocolate-coloured wings are extended to the utmost, and he keeps them in a steady, flapping motion, as if in imitation of their use in flight, at the same time raising up the delicate, long feathers over the back, which are spread in a chaste and elegant manner, floating like films in the ambient air. . . . . .

'I never yet beheld a soil on its feathers. After expanding the wings, it would bring them together so as to conceal the head, then bending it gracefully it would inspect the state of its plumage underneath. This action it repeats in quick succession, uttering at the time its croaking notes; it then pecks and cleans its plumage in every part within reach, and throwing out the elegant and delicate tuft of feathers underneath the wings, seemingly with much care, and with not a little pride, they are cleaned in succession, if required, by throwing them abroad, elevating them, and passing them in succession through the bill. Then turning its back to the spectator, the actions above-mentioned are repeated, but not in so careful a manner; elevating its tail and long shaft feathers, it raises the delicate plumage of a similar character to the sub-alar, forming a beautiful dorsal crest, and, throwing its feathers up with much grace, appears as proud as a lady dressed in her full ball-dress. Having completed the toilet, he utters the usual cawing notes, at the same time looking archly at the spectators, as if ready to receive all the admiration that it considers its elegant form and display of plumage demands; it then takes exercise by hopping, in a rapid but graceful manner, from one end of the upper perch to the other, and descends suddenly upon the second perch, close to the bars of the cage, looking out for the grasshoppers which it is accustomed to receive at this time. . . . . .

'His prehensile power in the feet is very strong, and still retaining his hold, the bird will turn himself round upon the perch. He delights to be sheltered from the glare of the sun, as that luminary is a great source of annoyance to him, if permitted to dart its fervent rays directly upon the cage. The iris frequently expanding and contracting, adds to the arch look of this animated bird, as he throws the head on one side to glance at visitors, uttering the cawing notes or barking aloud. . . . . Having concluded, he jumps down to the lower perch in search of donations of living grasshoppers.

'The bird is not at all ravenous in its habits of feeding, but it eats rice leisurely, almost grain by grain. Should any of the insects thrown into his cage fall upon the floor, he will not descend to them, appearing to be fearful that in so doing he should soil his delicate plumage; he therefore seldom or ever descends, except to perform his ablutions in the pan of water placed at the bottom of the cage expressly for his use.'

BIRDPEPPER. [See CAPSICUM.]

BIRDS, in Latin Aves, in Greek Ὄρνιθες, *Ornĭthes*, (whence Ornithology), a class of vertebrated, oviparous, feathered bipeds, generally formed for flight. We say *generally*, because, though their mechanism is, in its most perfect development, designed for enabling them to support their bodies in the air and to make progress in that medium, it is also calculated for motion on the ground and for perching in trees. Some families indeed are framed entirely for moving on the ground, and others for that motion and for making their way both on the surface of the water, and even, for a short period, below it, without the power in either case of raising themselves into the air.

ORGANIZATION.

Skeleton.

Skull (cranium). The first peculiarity which strikes an observer, when comparing the skulls of birds with those of mammifers, is the absence of sutures in the former, the proper cranial bones being consolidated into one piece. The skull of birds is articulated to that part of the vertebral column called the neck by a single condyle or joint, which is situated at the front margin of the great occipital opening (*foramen magnum*), through which the brain, becoming elongated, as it were, into the spinal chord, descends into the vertebral column. It is this beautiful adaptation of structure to the wants of the animal, that gives such a freedom of motion to the head, especially in a horizontal direction. Take, for example, the *wryneck* (Iynx torquilla), which, as those who have surprised the bird on the nest will readily admit, can writhe her head round so as to look the intruder in the face, hissing all the while like a snake; by this 'terrible show' many a bird's-nesting novice is frightened away. Perfect repose in a bird seems hardly to be enjoyed without turning back the head and nestling the beak between the wings; this attitude the articulation above mentioned enables the bird to command with the least possible effort.

The orbits are very large in proportion to the skull, to which last the lower-jaw is joined by a somewhat square bone (*os quadratum*, *os carré* of the French) not far from the ear. A small bone rests on the *square bone* at one end, while the other end comes against the palate. When, therefore, the *square bone* is brought forward by depressing the lower jaw, and also by muscles adapted to the purpose, the small bone presses up against the palate, and this raises the upper jaw, which, contrary to the rule in the structure of mammifers, is in birds, with but few exceptions, thus gifted with motion.

Both jaws are completely destitute of true teeth, the want of which is, as we shall presently see, amply compensated. The upper-jaw is either formed of one piece distinct from the skull and articulated with it, as in the parrots: or it is connected with it by means of yielding elastic bony plates, as in most other birds. These elastic plates admirably protect the bill (the upper part of which may be considered as an elongation of the intermaxillary bones) and the skull from the shocks of the former organ when used in pecking violently against hard substances.

In a few instances the upper-jaw is entirely immovable. Blumenbach gives the rhinoceros bird and the cock of the wood (*Tetrao Urogallus*) as instances.

Bones of the neck and trunk. The upper, or, to speak more correctly, the anterior extremities of birds are calculated for flight, and entirely useless as prehensile organs, because the bird depends principally upon its bill to gather its food. To give a greater freedom of action to this organ, it was necessary, as the bones of the back have hardly any motion (the dorsal vertebræ being often anchylosed or immovably fixed by a continuation of bony secretion), that the neck should be long and flexible; and eminently flexible it is. In the mammifers the number of cervical vertebræ (neck-bones) is seven; the cameleopard has no more, and the elephant and whale have no less. Cuvier, indeed, gives the sloth nine; Thomas Bell, however, has satisfactorily made out that the additional two are bones of the back, not of the neck. But, in birds, Nature has made up for the deficiency of motion in the back (a deficiency absolutely necessary to the comfortable existence of the animal, inasmuch as the back is the point of support to the wings) by the free grant of cervical vertebræ, according to the wants which the peculiar habits of particular birds require. Thus the raven has twelve neck-bones, the domestic cock thirteen, the ostrich eighteen, the stork nineteen, and the swan twenty-three, the largest number, it is believed, yet detected, while the *minimum* amounts to ten. The articulation is so contrived as to produce the greatest mobility, and that the contrivance is complete is proved by the ability of a bird to touch every point of its *body* with its bill.

The vertebræ of the back are from seven to eleven in number. There are no true lumbar vertebræ, for they are consolidated into one piece with the pelvis (*os innominatum*) which is elongated, broad, and simple, and does not unite below, as in mammifers, to form what is called the *symphysis pubis*, but has the lateral portions distant from each other. This is the general rule. The pelvis of the ostrich forms an exception; for it is joined below like that of most quadrupeds. In most of the quadrupeds the rump-bone (*os coccygis*) is prolonged into a truejointed tail. In birds it never is, but is very short, although it supports the large tail-feathers (*rectrices*)

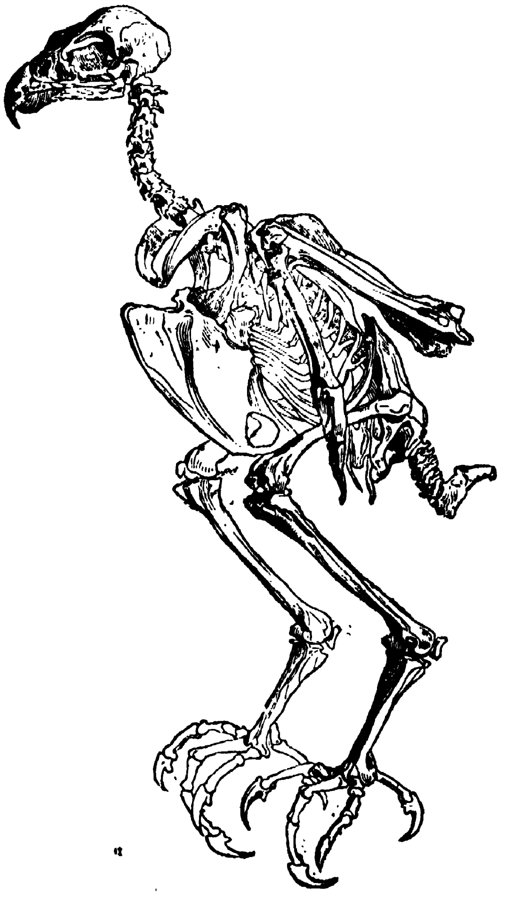
Ten pairs of ribs are said to form the *maximum* among birds; these, the *true ribs*, are joined to the breast-bone (*sternum*) by small intervening bones. The *false ribs* (those which do not reach the breast-bone) have a forward direction. There is a peculiar flat process directed upwards and backwards attached to the middle pairs of the true ribs.

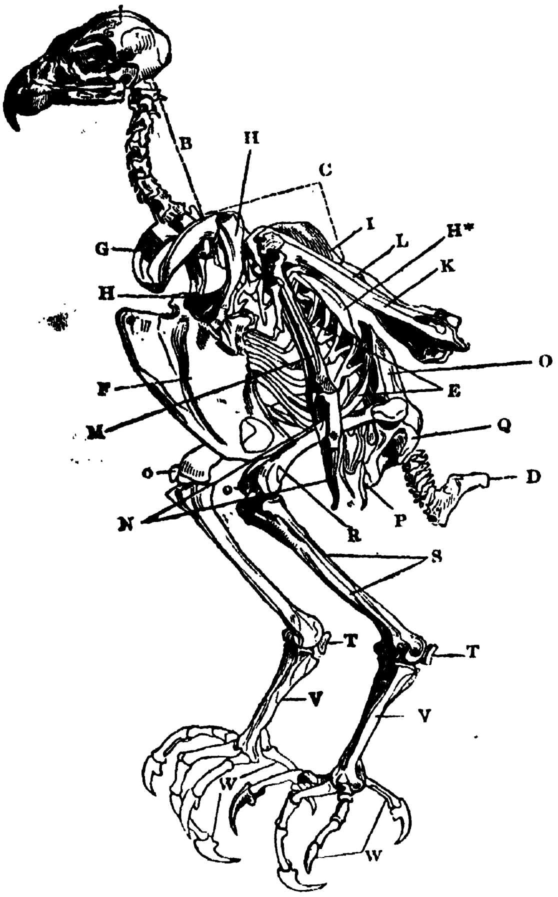
The *breast-bone* (sternum), a part of the greatest consequence, being the point of attachment for the most powerful of the muscles which set the wings in action, is composed of five pieces strongly joined together, and prolonged below into a crest (*crista*) for that purpose. The greater or less development of this crest or keel, and the greater or less ossification of the component parts of the breast-bone, depend upon the wants of the bird. Those birds whose flight is strongest and most continuous have the crest very large, and the breast-bone pieces very firmly cemented together, as any one may see who will examine the breast bone of a hawk, or eagle, or that of a humming-bird; while in the ostrich and cassowary this crest is entirely absent, and the breast-bone presents a uniformly arched surface, somewhat like that of a Highlander's target.

In the crane and in the male wild-swan there is a cavity in the anterior part of the breast-bone for the reception of the involuted wind-pipe (*trachea*). The connexion of the wings with the trunk is managed by means of the two clavicles, and of that peculiar fork-like elastic bone commonly called the *merry-thought*, by the French *fourchette* and *lunette* (*furcula*). This apparatus operates as an antagonist power to the action which would bring the wings together in flight, did not these bones, especially the *merry-thought*, keep the shoulders asunder. The greater or less development of this bone depends on the exigencies of each particular case. In birds whose flight is long and rapid it is strong, with the branches widely arched and carried forwards on the body; in birds which do not fly at all, in the ostrich, cassowary, and emu, for instance, the bone becomes a mere rudiment. 'In the ostrich,' as Macartney observes, the two branches are very short, and never united, but anchylosed with the scapula (shoulder-blade) and clavicle (collar-bone). In the cassowary there are merely two little processes from the side of the clavicle which are the rudiments of the branches of the fork. In the emu there are two very small thin bones attached to the anterior edge of the dorsal ends of the clavicles by ligaments; they are directed upwards towards the neck, where they are fastened to each other by means of a ligament, and have no connexion whatever with the sternum.'

The wing-bones may be compared with the arms or upper extremities of man and of the monkeys. Indeed Belon has shown with much ingenuity, though the design be rudely executed by the engraver, the resemblance between the skeleton of a bird and of a man—a resemblance greater, perhaps, than would be expected. The following are the bones composing the wing of a bird. The arm (*os humeri*); the fore-arm, consisting of two bones (*ulna* and *radius*); the wrist (*carpus*), formed by two bones; the *metacarpus*, also made up of two bones; a thumb, or rather the rudiment of one, there being but a single bone; and two fingers, the finger next the thumb consisting of two portions, and the other only of one. To this hand are attached the *primaries*, or greater quill-feathers; the *secondaries* are affixed to the *fore-arms*; and the *arm* supports feathers of inferior strength and development, called *tertiaries* and *scapulars*. The bone which represents the thumb gives rise to the *bastard quills*, and along the base of the *quills* are ranged the largest of those feathers which are denominated *wing coverts*. Such is the structure of the 'sail-broad vans' which waft the condor over the Andes.

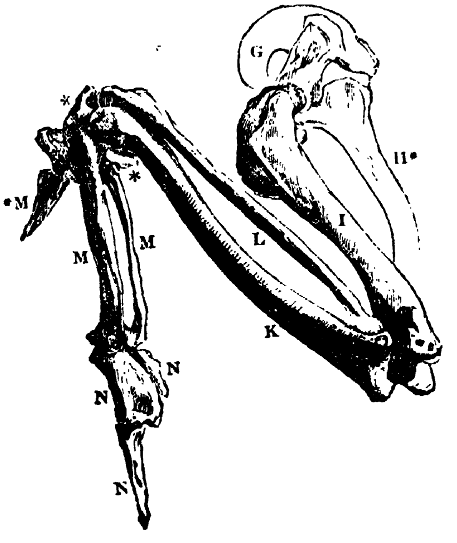
Bones of the lower or posterior extremities. These consist of a thigh-bone (*femur*): leg-bones (*tibia* and *fibula*), for there are two, though the fibula is very small, and becomes anchylosed to the tibia; one metatarsal bone (at the lower end of which there are as many processes as there are toes, each process furnished with a pulley for moving its corresponding toe), and the toes. Of these, three generally are directed forwards and one backwards. This back toe, or great toe, is wanting in some birds. In the swallows it is directed forwards; in the climbing birds the outer toe as well as the back toe are directed backwards. The number of joints is, generally, progressive: the back toe has two, the next three, the middle toe four, and the outer toe five joints.





[Skeleton of Sparrow Hawk.]

A, Cranium, or skull.
B, Cervical vertebræ.
C, The dotted lines indicate the extent of the anchylosed vertebræ of the back.
D, The caudal vertebræ; the letter is placed on the ploughshare, or rump-bone.
E, Ribs.
F, Sternum, or breast-bone.
G, Furcula, or merry-thought.
H, H. Clavicular, or coracoid bone, }
H*. Scapula, or shoulder-blade, } Forming the sidesman.
I, Humerus, or bone of the arm.
K, Ulna, } Bones of the forearm: on the ulna is the place of insertion
L, Radius, } of the secondary quills.
M, Metacarpal bones, part of the hand which carries the primary quills.
N, Phalanges of the fingers.
O, Ilium, }
P, Pubis, } Bones of the pelvis.
Q, Ischium, }
R, Femur, or thigh bone.
o, o, Patella, or knee-pan.
S, Tibia and fibula, or leg bones consolidated.
T, T, Os calcis, or heel-bone.
V, V, Metatarsal, or shank-bones.
W, W, Toes.



Wing-bones in detail.

G. Outline of part of furcula. H*, Outline of part of scapula. I, Humerus, or bone of the arm. K, Ulna; L, Radius, bones of the fore-arm: on the ulna are the marks of insertion of the secondary quills. * *, Carpal bones, or wrist. M, M, Metacarpal bones. M*, Thumb. N, N, N, Phalanges of the fingers.

'The stork, and some others of the *grallæ* (waders),' says Macartney, 'which sleep standing on one foot, possess a curious mechanism for preserving the leg in a state of extension, without any, or, at least, with little muscular effort. There arises from the fore-part of the head of the metatarsal bone a round eminence, which passes up between the projections of the pulley, on the anterior part of the end of the tibia. This eminence affords a sufficient degree of resistance to the flexion of the leg to counteract the effect of the oscillations of the body, and would prove an insurmountable obstruction to the motion of the joint if there were not a socket within the upper part of the pulley of the tibia to receive it when the leg is in the bent position. The lower edge of the socket is prominent and sharp, and presents a sort of barrier to the admission of the eminence that requires a voluntary muscular exertion of the bird to overcome, which being accomplished, it slips in with some force like the end of a dislocated bone.'

Muscles of Motion and External Integuments.

We will now briefly examine the means by which the framework which we have attempted to describe is set in motion. 'The muscles,' writes Blumenbach, 'in this class are distinguished by possessing a comparatively weak irritable power, which is soon lost after death; and by their tendons becoming ossified as the animal grows old, particularly in the extremities, but sometimes also in the trunk.'

The pectoral muscles, as we might expect from the form of the sternum, exhibit, generally speaking, the greatest development. They are three in number, taking their rise, chiefly from the ample breast-bone, and all being brought to bear on the head of the arm (*humerus*). Of these, the first, or great pectoral, is said, as a general proposition, to weigh more than all the other muscles put together. Rising from the keel or crest of the breast-bone, the merry-thought, and last ribs, it is inserted in that rough linear elevation which may be observed on the bone of the arm of most birds. This bone it strongly depresses, and so produces the rapid and powerful motions of the wing, which, acting on the surrounding air, carries the bird forward in its flight. As an antagonist to the great pectoral muscle, the *middle pectoral*, which lies under it, and whose office it is to elevate the wing, puts forth its tendon over the point where the merry-thought is joined to the clavicle and shoulder-blade. This point of junction acts as a pulley for the tendon which is inserted in the upper part of the bone of the arm; and by this contrivance the elevating power is situated on the lower surface of the body. The third, or small pectoral, aids the great pectoral in depressing the wing. Thus some birds are enabled to dart away with the rapidity of an arrow, while others soar to a height invisible to the gaze of man.

We have already seen that the pelvis is prolonged backwards to a considerable extent. This formation furnishes room for the attachment of the muscles which set the posterior extremities in motion, and enables them to perform the functions of walking, hopping, swimming, climbing, and perching. To this end there are a set of muscles which go from the pelvis to the toes. One of the flexor, or bending, tendons given off from a muscle which comes from the bone of the *pubis* runs in front of the knee, and all the flexors go behind the heel, so that the mere weight of the bird will bend the toes. Any one may satisfy himself that this operation is purely mechanical, and not the result of muscular action, by making the experiment on a dead bird; when he will find that the flexion of the knee and heel will at once bend the toes. This admirable contrivance, useful as it generally is, shows itself in the most striking manner when brought to bear on the limbs of those birds which roost in trees. When all the voluntary powers are suspended, such a bird enjoys the most profound repose, and the most secure position on its perch, without an effort. Avoiding a minute detail of the muscles which move the jaws, of those which give that complete flexibility of neck so necessary to this class, or of those which regulate the movement of the tail, it will be sufficient to observe that their adaptation to the functions required is most beautiful and perfect.

The integuments of birds are composed of the same parts as those of the mammifers, with the addition of feathers, the peculiar covering common to the whole class. The beak is covered with horn, and at its base, as in the birds of prey, there is a fleshy part called the cere. The lower extremities are protected above by a scaly skin, and the bottom of the foot and toes by a callous modification of the same integument. Some, the turkey for instance, are furnished with hair in certain situations. The feathers vary infinitely. Every form which the most sportive fancy could create out of the feathery material, and every hue that the warmest imagination could picture to itself, will be found among them. When a bird has just left the egg its covering is a downy kind of hair, several little bundles taking their rise from one common bulb. This is the origin of the future feather. A dark cylinder soon makes its appearance, from the upper extremity of which the sprouting feather emerges, while the lower extremity receives the blood-vessels which supply the vascular nourishing pulp of the barrel. When this pulp has performed its office, and the stalk and other parts of the feather are fully developed, it shrivels up into the well-known substance which every one finds in a quill when he cuts it for the purpose of making a pen. The care which nature takes for the development of that particular part of the plumage first which the wants of the particular bird demand, should not be forgotten. A young partridge runs off as soon as it is hatched to pick up the pupæ of the ant (emmet's eggs as the gamekeepers call them), which the parent bird scratches up for it. Some time elapses before it is necessary that it should fly; we accordingly find that the body from the moment of its birth is protected with a close-set downy covering, while all the strength is thrown into the thighs, legs, bill, and neck. The wings are gradually developed afterwards. A young thrush or a young blackbird is hatched nearly naked, and while its body presents only a few scattered bunches of weak downy hair-like feathers, great progress may be observed in the formation of the quills and other wing-feathers; because from the habits of the bird it is necessary that it should be able to fly as soon as it leaves the nest.

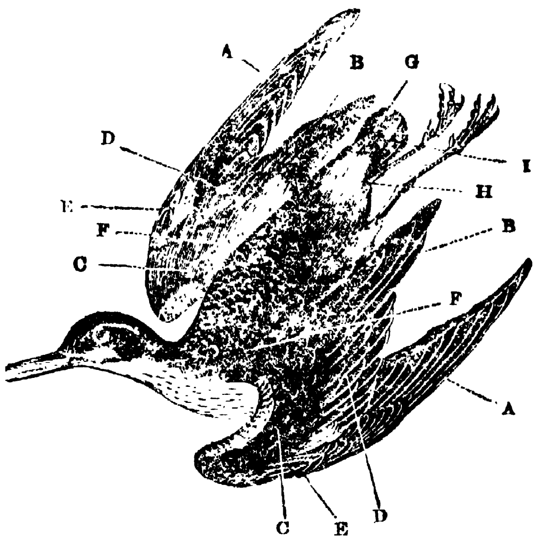
As a general rule the plumage of the cock bird far exceeds in brilliancy that of the hen; and in all such cases the young, at first, put on the more sombre garb of the mother. When the cock and hen are without much difference in this respect, the young have a particular distinguishing plumage of their own.

Birds moult or shed their feathers. The summer dress in many species varies from that of the winter.

The mode in which the plumage changes is well described in the Transactions of the Zoological Society by Yarrell; and the same able zoologist has shown, in the Philosophical Transactions, and in the Proceedings of the Zoological Society, that the putting forth of the plumage of the male bird is not confined to the female past the age of reproduction (so many well-known instances of which are given by Dr. Butter, John Hunter, and others), but that the garb of the cock is assumed by those hen birds which from malformation or disease are rendered unable to assist in the continuation of the species. The following three modes by which changes in the appearance of the plumage of birds are produced have been pointed out by Yarrell:—1. By the feather itself becoming altered in colour. 2. By the bird's obtaining a certain portion of new feathers without shedding any of the old ones. 3. By an entire or partial moult, in which the old feathers are thrown off, and new ones produced in their places. The first two of these changes are observed generally in the spring, indicating the approach of the breeding season; the third is usually partial in the spring, and entire in the autumn. The subjoined cut is explanatory of the situation of the principal parts of the plumage, particularly those most conducive to flight.

That the skin and integuments of birds perform the office of emunctory organs appears not only by their moulting, but also by the quantity of mealy dust separated from the skin in many birds. The cockatoo, for instance, discharges a quantity of white mealy dust from its skin, particularly at pairing time, according to Blumenbach: and Bruce, in the appendix to his travels, gives an account of his shooting a large bearded eagle, which, on his taking it in his hands, covered him with a powder which was yellow on the breast, where the feathers were of that colour, and brown on the back, where the plumage was of the same hue. A heron too which he shot is described as having a great quantity of blue powder on the breast and back.

The glands which secrete the oil used by birds in preening and dressing their plumage are situated on the upper part of the tail. Water-birds necessarily require a larger portion of this protecting fluid, and accordingly we find the glands largest in that race. Réaumur observes, that in that variety of the common fowl which has no tail (*Gallus ecaudatus*), these glands are absent. Tyson states that the ostrich has the glands situated not on the rump, but farther forwards. Lawrence, in his translation of Blumenbach's *Comparative Anatomy*, says, 'I have observed in the situation which Tyson mentions a pretty considerable bag with hard callous sides, and nothing glandular in its coats. It contained a brown and unctuous but nearly solid matter, and I could discover no external opening; but it had been somewhat cut before I examined it. It cannot, I think, be very well compared with the oil-bag of the rump.'



A, A, Primaries; B, B, Tertials; C, C, Lesser coverts; D, D, Greater coverts; E, E, Bastard wing; F, F, Scapulars; G, Upper tail-coverts; H, Under tail-coverts; I, Tail-feathers.

Digestive Organs.

Having endeavoured to give a sketch of the frame-work of birds, of the means by which that frame-work is set in motion, and of the integuments which cover the external parts, we proceed to inquire into the provision made for the support and nourishment of those animals. This provision, as might be expected, is, as Cuvier observes, 'in proportion to the activity of their life, and the strength of their respiration.' First we have the bill, whose horny covering in some degree answers the purpose of teeth, and indeed it is in many instances notched so as to represent them. The form of this important organ varies infinitely, but with evidence of the most perfect design in each varied instance, according to the nature of the necessary food. Thus in birds of prey it well executes the office of a dissecting knife; in seed-eating birds it forms a pair of seed-crackers for extricating the kernel from the husk which envelops it; in the swallows and goatsuckers it is a fly-trap; in the swans, geese, and ducks it is a flattened strainer, well furnished with nerves in the inside for the detection of the food remaining after the water is strained by that particular operation which every one must have observed a common duck perform with its bill in muddy water. In the storks and herons we find it a fish-spear; and in the snipes and their allies it becomes a sensitive probe, admirably adapted for penetrating boggy ground, and giving notice of the presence of the latent worm or animalcule. The food is transmitted from the bill through the œsophagus into the stomach, which is composed of three parts, viz. the *crop*, which is a dilatation of the œsophagus and lies just before the breast bone, the *membranous stomach* (*ventricule succenturié* of the French), and the *gizzard*. The first of these is furnished with many mucous and salivary glands: in the next (and the structure of this may be best observed in the gallinaceous birds) there are a number of glandular bodies which pour out a copious secretion to mingle with the food as it is ground down by the powerful gizzard, which reaches its highest development in granivorous birds. This mill is rendered still more effective by the swallowing of small hard stones by those birds with their food, a practice which is clearly instinctive, and carried sometimes to a great extent. In the museum of the College of Surgeons (London) is a large glass bottle entirely filled with pebbles, &c. taken from the stomach of an ostrich. The well-known experiments of conveying bullets beset with needles and even lancets into the stomachs of granivorous birds, with the effect of the total destruction of those sharp instruments in a short period, need only be referred to here; but as Felix Plater's observations have not attained quite so much celebrity, we shall shortly mention them. He found that an onyx swallowed by a hen was diminished one-fourth in four days, and that a louis d'or lost in this way sixteen grains of its weight.

In such birds as nourish their young from the crop the glands swell very much at the hatching season, and secrete a greater quantity of fluid than usual. In the pigeon, which thus feeds its young, there is a spherical bag formed on each side of the œsophagus, a specimen of which may be seen in the museum of the College of Surgeons. It is not improbable that the banter about 'pigeon's milk' took its rise from this part of the œconomy of the bird.

In those birds which feed on flesh, fish, or worms, and which consequently do not require so powerful an apparatus, the muscles of the gizzard are reduced to an extreme weakness, and that organ appears to make only a part of the same membranous bag with the *ventricule succenturié*.

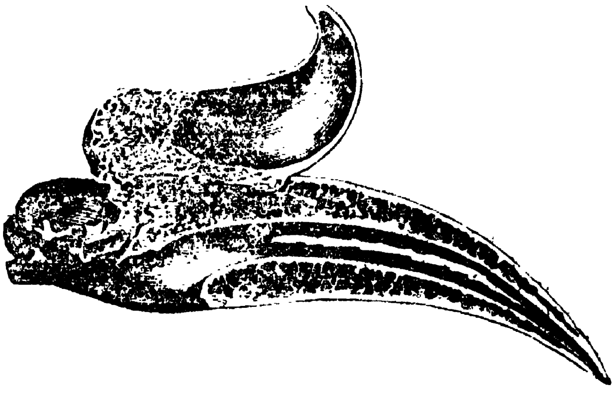
The food being thus reduced into a sort of chyme, passes through the remainder of the intestinal canal, where all the nutritious parts are taken into the system, and the remainder is at length expelled by the *cloaca*, where the urinary ducts terminate, and the organs of generation are situated. It may be worth mentioning that the liver becomes much larger in domesticated birds than in wild ones (a propensity which can be increased by artificial means, as the gourmand who revels in his *foies gras* well knows), and that the gall-bladder is entirely wanting in some birds, the parrot and pigeon for instance. Hence, no doubt, the saying, 'He has no more gall than a pigeon.' The *pancreas* (sweet-bread) is of considerable size in birds, but the spleen is small.

Vital Functions and Organs of the Voice.

The heart, in this class, is of peculiar structure. Instead of the membranous valve which is present in both ventricles of the heart of mammifers, and in the left ventricle in birds, the right ventricle of the heart in the latter is furnished with a strong muscle which assists in driving the blood with greater impetuosity from the right side of the heart into the lungs; a structure rendered necessary from the want of expansion of the lungs in breathing consequent upon their connexion with the numerous air-cells. The lungs are small and flattened, and adhere to the back of the chest in the intervals of the ribs, and a considerable part of the abdomen as well as of the chest is occupied by membranous air-cells with which the lungs communicate by considerable apertures. In addition to these, a great portion of the skeleton in most birds becomes a receptacle for air. Instead of marrow the larger cylindrical bones contain air, and form large tubes, interrupted only towards the ends by transverse bony fibres. The broad bones present internally a reticulated bony texture, pervaded by the same fluid, communicated from the lungs by small air cells. The enormous bills of the toucan and of the hornbill are supplied with air from the same quarter. The very barrels of the quills, when fully developed, can be filled with air or emptied at the pleasure of the bird; and it is thus that the voluntary erection of the plumage in the turkey, &c., is supposed to be in great measure produced.

The effect of this structure in lightening the body of the bird, and facilitating its motions whether in flying, swimming, or running, is obvious. Where the demand is greatest (as in birds of the highest and most rapid flight) the supply is largest. Thus, in the eagle, we find the bony cells of great size, and very numerous. The section of a head of the hornbill (*Buceros Rhinoceros*), here represented, will convey some idea of the structure of these air-cells.

The organs of the voice in birds bear a striking resemblance to certain musical wind-instruments. The larynx is double, or rather made up of two parts: one, the proper *rima glottidis*, situated at the upper end of the windpipe, and the second, the *bronchial*, or lower larynx, which contains a second rima glottidis, furnished with tense membranes that perform in many birds (and especially in the aquatics) the same part as a reed does in a clarionet or hautboy, while the upper rima, like the ventage or hole of the instrument, gives utterance to the note.



[Section of the head of *Buceros Rhinoceros*.]

The length of the windpipe and the structure of the lower larynx vary much in different species and even in the sexes, particularly among the water-birds. In the domestic or dumb swan the windpipe is straight; in the male wild swan the windpipe is convoluted in the hollow of the breast-bone like the tube of a French horn.

The following are the conclusions of M. Jacquemin in his paper lately read before the French Academy; and though many of the facts were previously known, M. Jacquemin's communication must be considered as a valuable addition to this part of the subject. After observing that the air enters not only into the lungs and about the parietes of the chest, but that it also penetrates by certain openings (foramina) into eight pneumatic bags or air-cells, occupying a considerable portion of the pectoro-abdominal cavity, and thence into the upper and lower extremities, he concludes, 1st, That the pneumatic bags are so situated as to be ready conductors of the air into the more solid parts of the body; and that the air, by surrounding the most weighty viscera, may support the bird in flight, and contribute to the facility of its motions when so employed. 2nd. That the quantity of air thus introduced penetrates the most internal recesses of their bodies, tending to dry the marrow in the bones and a portion of the fluids: a diminution of specific gravity is the result, the true cause of which has been, in his opinion, vainly sought in the quantity alone of permeating air. 3rd. That in birds the oxidation of the nourishing juices is not entirely effected in the lungs, but is much promoted also in the pneumatic bags above mentioned, for their contained air operates through the membranes upon the blood-vessels and lymphatics in contact with them; a more complete and speedy oxidation is the result. 4th. That not only the skeleton, but all the viscera are much more permeable by air in birds than in any of the other vertebrated animals. 5th. That the air-reservoirs are not always symmetrical, their shape and extent depending entirely upon the form and situation of the organs among which they occur; but the supply is so modified that the total quantity received into the pneumatic bags on the right side of the body is equal to that which enters into those on the left; and indeed without the maintenance of this condition the act of flying would be impossible, and that of walking difficult. 6th. That no portion of a bird's structure is impervious to air: it reaches even the last joints (phalanges) of the wings and feet, and the last caudal vertebræ, or rump-bones. The quill of the feathers is not excepted, as has been sometimes asserted. 7th. That the air within the head has a separate circulation, and does not directly communicate with the air-pipes of the rest of the body. 8th. That in no instance does the air come into direct contact with the viscera or nourishing juices, but invariably through the medium of a membrane, however fine and transparent. 9th. That the volume of air which birds can thus introduce into their bodies, and the force with which they can expel it, offers the only explanation how so small a creature as a singing-bird (the nightingale, for example) is able to utter notes so powerful, and, without any apparent fatigue, to warble so long and so musically.

The organs of respiration in birds, as well as their sexual organs, are the seat of the continual vibratory motions produced by cilia, discovered by Professor Purkinje and Dr. Valentin of Breslaw, to exist as a general phenomenon over the internal surface of those parts, and those parts only in the classes of mammifers, birds, and reptiles. Dr. Sharpey's observations confirm their discovery of this ciliary motion, with the following modifications, viz., in the air-passages and Fallopian tubes of mammifers, in the air-passages of birds, and in the mouth and throat of the batrachians; the negative observations respecting the oviduct of the bird being inconclusive.

Brain, Nervous System, and Senses.

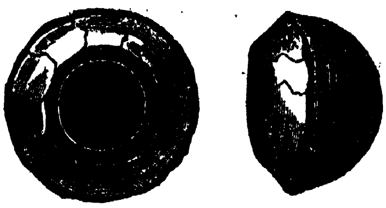
We must now turn our attention to that part of the animal economy wherein resides the intelligence which directs and regulates the whole of the voluntary powers. The brain of birds possesses the same characters which are to be found in other oviparous vertebrated animals, but its proportional volume is its distinguishing peculiarity; and this volume often surpasses the development of that organ in mammifers. Indeed, in some birds, and more particularly in some of the songsters, the brain has been said to exceed that of man when considered in reference to the size of the head and of the whole body. But this assertion, after all, involves a fallacy. The size of the eye regulates the development in great measure; and when we look at the relative proportion of brain in a canary bird, we must not forget the great lightness of the other parts of its body. In a herring a part of the brain is as much developed in proportion as the same part is in man. The following scale has been given as an example of the size of the brain in relation to that of the body:—

Eagle, 1-260th of the body; sparrow, 1-25th; chaffinch, 1-27th; redbreast, 1-32nd; blackbird, 1-68th; canary-bird, 1-14th; cock, 1-25th; duck, 1-257th; goose, 1-360th In man the brain forms from 1-22nd to 1-33rd of the body; in some apes, 1-22nd; in the elephant, 1-500th; in the horse, 1-400th; in the dog, 1-161th; and in the cat, 1-94th

The size of the brain in birds arises principally from tubercles analogous to the *corpora striata* of mammifers, and not from the hemispheres, which are small, smooth, and without convolutions. The cerebellum is large, almost without lateral lobes, and formed principally by the vermiform process. Several parts found in the brain of mammifers are absent in birds, and among these are the *corpus callosum* and *pons Varolii*. With reference to the comparative size of the brain in birds, it may be necessary to say a few words. From the days of Aristotle down to a very late period it was received and transmitted as an axiom that man has the largest brain in proportion to his body. The spirit of modern investigation, however, soon discovered several exceptions to this rule, and destroyed the generally admitted conclusion. Then came Sömmering, to whom we owe the great bulk of our information on this subject, and he presented us with the ratio which the mass of the brain bears to the nerves which it gives off; a point of comparison which still holds good. 'Let us,' writes Lawrence in his edition of Blumenbach's *Comparative Anatomy*, 'divide the brain into two parts; that which is immediately connected with the sensorial extremities of the nerves, which receives their impressions, and is therefore devoted to the purposes of animal existence. The second division will include the rest of the brain, which may be considered as connecting the functions of the nerves with the faculties of the mind. In proportion, then, as any animal possesses a larger share of the latter and more noble part—that is, in proportion as the organ of reflexion exceeds that of the external senses—may we expect to find the powers of the mind more vigorous and more clearly developed. In this point of view man is decidedly pre-eminent; here he excels all other animals that have hitherto been investigated.'

Of the five senses which are on the watch to give information to the sensorium, sight, smell, and hearing are most acute in birds.

Sight.—We have seen that the bony orbits are of great magnitude, and the organs of sight which are contained therein are proportionably large. In the birds of prey the orbits have the shape of a 'chalice,' says Blumenbach, 'or cup used in the communion service. The cornea, which is very convex, forms the bottom of the cup, and the posterior segment of the sclerotica resembles its cover. This peculiar form arises from the curvature and length of the bony plates, which, as in all other birds, occupy the front of the sclerotica, lying close together and overlapping each other. These bony plates form in general a flat or slightly convex ring; being long and curved in the *accipitres* (hawks) they form a concave ring, which gives the whole eyeball the above-mentioned form.' By means of this ring the eye becomes a kind of self-adjusting telescope, so as to take in both near and very distant objects.



[Sclerotic plates of Penguin.]

A representation of the sclerotic plates, forming the bony ring in the eye of the penguin (Aptenodytes), is here given. They remind us forcibly of the eye-plates in some of the reptiles, particularly of those belonging to the eyes of the Enaliosaurians, or fossil marine lizards. The penguin has to adjust its eye for vision both on land and under water. This contrivance must greatly assist the adjustment necessary for seeing clearly in such different media.

The crystalline humour is flat in birds; and the vitreous humour is very small. The colour of the iris varies in different species, and in many cases is very brilliant. The *marsupium*, which arises in the back of the eye, and the use of which is not very clearly ascertained, is a peculiarity in the eye of birds. They have three eye-lids, two of which, the upper and lower, are closed in most of the race by the elevation of the lower one, as may be frequently seen in our domestic poultry. The owl, the goat-sucker, and a few others, have the power of depressing the upper eye-lid. Of these birds the upper only is furnished with eye-lashes generally: the ostrich, secretary vulture, some parrots, and a few other birds, have them in both lids. But the third eye-lid, or *nictitating membrane*, forms the most curious apparatus. When at rest, this, which is a thin semi-transparent fold of the *tunica conjunctiva*, lies in the inner corner of the eye, with its loose edge nearly vertical. By the combined action of two muscles which are attached towards the back of the *sclerotica*, it is capable of being drawn out so as to cover the whole front of the eye-ball like a curtain, and its own elasticity restores it to the corner in which it rested. This, it is said, enables the eagle to look at the sun: it may be seen in operation to much advantage in the Great South American Eagle (*Harpyia destructor*) at the gardens of the Zoological Society in the Regent's Park.

The sense of hearing appears to be sufficiently acute in birds, though (with the exception of the night-birds, the owls in particular) they have no external cartilaginous ear; and the peculiar valve, partly muscular, partly membranous, placed at the auditory opening even in those birds, has none of the development which generally marks the *concha* of mammifers. The peculiar arrangement of the comparatively loosely barbed feathers, however, round the aperture (*meatus auditorius*) compensates for it; and this arrangement may be well seen in the rapacious birds. The membrane of the drum (*membrana tympani*) is convex externally, and the drums of both ears are connected by the air-cells of the skull. There is neither *malleus* nor *stapes*, and their place is supplied by a single auditory bone (*ossiculum auditus*) which connects the membranes of the drum with the *fenestra ovalis*. The Eustachian tubes terminate in a sort of common aperture on the concavity of the palate. The labyrinth is without a *cochlea;* instead of which there is a short, blunt, hollow bony process obliquely directed backwards from the vestibule, and divided into two portions, one of which ends at the *fenestra rotunda*.

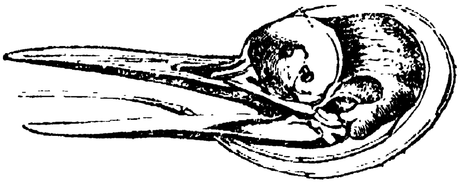
The sense of smelling in the majority of birds seems to be highly developed. The olfactory nerve is given off from the foremost part of the front lobe of the brain, whence it passes along a canal to the nose, and is ramified on the pituitary membrane, which is spread over two or three pairs of bony or cartilaginous *conchæ narium*. The nostrils terminate in different parts of the upper mandible in different genera; and, according as these apertures are smaller or larger, or more or less covered by membranes, cartilages, feathers, or other integuments, the sense is probably more or less acute. But no bird is without nostrils, though Buffon asserts that several are unprovided with them: the puffin, indeed, and some others have them so small, and placed so closely on the margin of the mandible, that they are not easily detected.

This sense was supposed to have reached its highest point of perfection in the vultures and other carrion-birds. Poets and philosophers have dwelt on the 'delight' with which they

> '. . . . snuff'd the smell
> Of mortal change on earth. . . .
> Sagacious of the quarry from afar.'

But, according to the experiments of Audubon (and they were made with a species which has obtained a reputation for great sagacity in this way), the nostrils do not seem to have been of the least assistance to the birds in directing them to their prey; while the eye, even when the birds were far above human sight, appears to have been infallible. This conclusion has been, indeed, disputed: but the facts stated by Audubon are very strong.

Taste.—Though all birds possess a tongue, it is probable that but few find enjoyment in the organ as ministering to their taste, and in those it is soft, thick, and covered with papillæ. Some of the birds of prey, some of the swimmers, and the parrots generally, have such a tongue, and there can be no doubt that these taste food of a soft or fluid nature, and select that which they like best. But in general the tongue is horny and stiff, and appears unsuited to convey such impressions, though as an organ for taking food it becomes of the highest importance. In the humming-birds and other honey-suckers it is a tubular pump, and in the woodpeckers it is an insect-spear. In both cases it can be protruded and retracted at pleasure; and the simple but beautiful machinery by which this act of volition is performed, is adapted with the most masterly fitness to the motion required. Upon examining the tongue of the common green-woodpecker, we shall find that, instead of being very long, as it is erroneously supposed to be, it is really very short, sharp-pointed, and horny, with barbs at its sides. Behind this lies the singular tongue-bone (*os hyoides*), slender, and with two very long legs or appendages (*crura*). This is made up of five parts, consisting of a single portion and two pairs of cartilages. Let us suppose the tongue to be at rest, and then the single piece lies in a fleshy sheath, capable of great extension. To this piece the first pair of cartilages, which are situated at the sides of the neck, are joined, while the second pair, springing from these, run under the integuments completely over the skull, and, advancing forwards, converge in a kind of groove, terminating generally in the right side of the upper jaw. This second pair, by their elasticity, become the springs which set the whole in motion. When the organ is to be protruded, the anterior pieces are drawn together, and enter the extended sheath of the single piece: the tongue is thus elongated as it were, and the bird can thrust it far forth.



[Os hyoides of woodpecker.]

The sense of touch, as applied to external objects, must be, generally speaking, very obtuse in birds. Feathers, horny beaks, and scaly skin, do not offer a satisfactory medium for conveying impressions by contact. But in those birds which search for their food in mud (ducks, for instance), where neither sight nor smell can be of much avail, the bill is covered with a skin abundantly supplied with sensation by nerves from all the three branches of the fifth pair, in order that they may successfully feel about for their hidden sustenance.

Duration of Life, Reproduction, Migration.

That the animated machine which we have endeavoured to sketch is formed for strong resistance of decay is proved by the very long life which many birds are known to have attained. The evidence of this fact does not rest upon tradition only, which has invested the 'annosa cornix' with such venerable length of years; for there are not wanting well-authenticated instances of birds which had seen out a century; and yet the period of incubation in no instance exceeds a few weeks.

The continuation of the species is carried on by eggs, which are laid in a nest more or less artificial according as the nestling is more or less capable of gathering its own food at the time of its exclusion from the egg. Of those birds whose young possess this capability in the highest degree, the male is, for the most part, polygamous, and does not pair; but among those whose helpless young depend for some time on the parents for their sustenance, one male confines his attentions to one female, as long at least as the season of love, incubation, and parental anxiety endure. To the first and second of these seasons we, in great measure, owe that outpouring of melody which renders our groves and gardens so musical in spring.

'There is every reason,' writes Montagu, 'to believe it is necessary there should be native notes peculiar to each species, or the sexes might have some difficulty in discovering each other, the species be intermixed, and a variety of *mules* produced: for we cannot suppose birds discriminate colours by which they know their species, because some distinct species are so exactly alike that a mixture might take place. The males of song-birds, and many others, do not in general search for the female; but on the contrary, their business in the spring is to perch on some conspicuous spot, breathing out their full and amorous notes, which by instinct the female knows, and repairs to the spot to choose her mate. This is particularly verified with respect to the summer birds of passage. The nightingale, and most of its genus, although timid and shy to a great degree, mount aloft to pour forth their amorous strains incessantly, each seemingly vieing in their love-laboured song before the females arrive. No sooner do they make their appearance than dreadful battles ensue, and their notes are considerably changed; sometimes their song is hurried through without the usual grace and elegance: at other times modulated into a soothing melody. The first we conceive to be a provocation to battle on the sight of another male; the last an amorous cadence, a courting address. This variety of song lasts no longer than till the female is fixed in her choice, which is in general in a few days after her arrival; and if the season is favourable, she soon begins the task allotted to her sex.'

We entirely agree with the writer of this animated passage, that ''Tis love creates their melody,' and that the ear is a principal guide to the hen-bird in her choice of a mate; but we cannot entirely exclude the eye, when we remember what pains have been taken in most instances to distinguish the sexes by the colour of their feathered garb, and even in many instances to prepare a nuptial dress (*plumage de nôces* of the French) for the male, which fades when the season of love has passed away.

We must not dwell here upon the wonders of birds'-nests, their admirable structure as places of comfort and concealment, and the exquisite workmanship of some of them, that of the goldfinch, for instance. In those snug receptacles the eggs are deposited and hatched. Then the old birds feel all the parent within them and entirely forget their own safety and wants in protecting and providing for their helpless nestlings. This parental love changes the timid at once to the brave; for birds of prey, cats, dogs, and sometimes even man, when he approaches the sanctuary, are attacked and followed with angry cries. For some time after quitting the nest this care continues, till the nestling is able to provide for itself. Then the whole scene changes. The young bird still lingers about the old one, and approaches it when it finds a worm or insect, expectant of the morsel. At first the young bird is unheeded and treated coldly; but if it does not take this hint and perseveres in its solicitations, the parent, which but a few days before would have braved a hawk or a cat in its defence, and would have been content to suffer hunger rather than have seen it without food, gives it a buffet, and thus compels it to rely on its own resources.

Few phenomena have attracted more attention than the migration of birds. That some of our delicate songsters, with no great power of wing, should cross the seas periodically, returning, as they undoubtedly do, to those spots which they have before haunted, and which are associated in their memories with the pleasing cares of former years, excites our admiration, if not our astonishment. As regularly as the seasons of which many of them are the harbingers, do these little travellers visit us, and as regularly do they take their departure. The immediate cause of migration is no doubt to be found in temperature and food, particularly that which is adapted for the sustenance of the young; and the instinct of the bird accordingly leads it from one climate to another.

Systematic Arrangement and Natural History.

We now approach a part of our subject not quite so fascinating; for, in a compendious account of the writers on the natural history of birds, and of the systems which have been proposed, we cannot expect to find much amusement. But without method there cannot be science, and without arrangement, natural history would be but a tangled chain, nothing impaired indeed, but certainly all disordered. Birds appear to have been objects of interest from the earliest periods. In comparatively later times we find them mingling in the superstitions of Greece and Rome, and it is evident that their history and habits were familiar, not only to the husbandman and the augur, but to the great mass of the people. Without such a familiarity on the part of the Athenians, Aristophanes would hardly have ventured on introducing his audience to Νεφελοκοκκυγία (see his play entitled 'The Birds'); nor would other poets, Grecian and Roman, so often have referred to these animals as well known harbingers of certain times and seasons. But it remained for Aristotle, and after him Pliny, to take up the subject philosophically. The former, in his History of Animals, has distinguished the species, and recorded the habits of birds with the accuracy and power which distinguished that great observer: the latter, in the tenth book of his Natural History has displayed much learning, but not a great deal of originality.

In modern literature, the first writer of note on this subject is Pierre Belon, who in 1555 arranged these animals according to their habits and their haunts. In his system the rapacious birds form the first division, the waders the second, the swimmers the third, and the birds which nestle in trees or on the ground, the fourth. He was an able zoologist and accurate observer, and has pointed out the comparative anatomy of birds, with reference to that of man especially.

The third part of Conrad Gesner's 'History of Animals,' published in 1555, consists of his treatise on birds, where he has with some labour collected their various national names, and referred to the writers who had noticed the subject.

In 1599, Aldrovandus of Bologna published his ornithology. Pursuing the plan of Belon, he arranged the birds according to their haunts and their food, adding many new descriptions.

These three works are all illustrated with wood-cuts.

In 1657 Jonston published his Natural History, a kind of '*Repertorium Zoologicum*,' wherein all that had been done before his time was condensed, and where every monstrous zoological fable was perpetuated, even in the copper-plates, which ministered to the appetites of those who loved to see what mermen and mermaids were like, and delighted in the sight of 'hydras and chimeras dire.'

We now approach a period wherein the reign of System commenced; and we owe one of the first natural arrangements, if not the first, to Francis Willughby, an English gentleman, whose *System of Ornithology* was edited by our celebrated countryman Ray, in 1678, after the author's death. It is a work of very great merit. The general divisions are two, 'Land Birds,' and 'Water Birds.' The land birds are further divided into those which have a crooked beak and crooked talons, and those which have those parts nearly straight.

The water-birds are arranged in three sections. The first consists of waders, and those which haunt watery places. The second of those that are of a 'middle nature, between swimmers and waders, or rather that partake of both kinds, some whereof are cloven-footed and yet swim; others whole-footed, but yet very long-legged, like the waders:' the third is formed by the palmated birds or swimmers.

The same friendly office that was performed for Willughby by Ray, Dr. Derham executed for the latter, whose *Synopsis Methodica Avium*, a posthumous work, but entirely completed by the author before his death, was published by the Doctor in 1713. In this synopsis Ray carried out and further improved Willughby's system. Upon the works of these English naturalists rested in great measure the zoological system of Linnæus.

The first sketch of the Swedish naturalist's *Systema Naturæ* appeared in folio, at Leyden, in 1735. It consisted of twelve pages, and was, as Linnæus himself says, 'Conspectus tantum operis et quasi mappa geographica.' Eight subsequent editions, in various forms, with gradually increasing information, were published in various places, and in 1758 the ninth edition ('longè auctius factum a me ipso,' says the author) was sent forth in 8vo. In this edition the birds are arranged under the same 'orders' as they are in the twelfth and last edition, which appeared in 1766. The thirteenth edition was not the author's, but Gmelin's.

The following are the orders of Linnæus's class *Aves:*

1. Accipitres. Birds of prey, properly so called.
2. Picæ. Woodpeckers, crows, humming-birds, kingfishers, &c. &c. &c.
3. Ansores. Swimmers.
4. Grallæ. Waders.
6. Gallinæ. Gallinaceous birds (partridge and domestic fowl, for instance).
6. Passeres. Sparrows, finches, thrushes, doves, swallows, &c. &c.

These orders, some of which are not very natural, include with their subdivisions 78 genera.

In 1760 appeared the system of Brisson, which divides birds into two great sections. The first, consisting of those whose toes are deprived of membranes; the second, of those whose toes are furnished (*garnis*) with membranes through their whole length.

There are many subdivisions, under which are arranged 26 orders, including 115 genera. This able ornithologist owes much of his celebrity to the minute accuracy of his specific descriptions.

In 1770 Buffon published the first part of his work relating to birds. It is marked by the same eloquent animated style which adorns the rest of his *Natural History;* but much cannot be said for its arrangement, nor for the justice of some of his conclusions. He seldom omits an opportunity of arraigning Nature at the bar of his fancy for some supposed defect of design, when the fault is in his own want of perception of the end to which that design is directed, arising from his not being acquainted with the habits to which it ministers.

Schæffer, in his *Elementa Ornithologica*, which was given to the public in 1744, divides birds into two great families, *Nudipedes* et *Palmipedes.*

Scopoli (1777), in his introduction to Natural History, divides them also into two families; but he takes his distinction from the arrangement of the scaly skin on the legs; the first division or *Retipedes* consisting of those the skin of whose legs is marked by small polygonal scales; the second, *Scutipedes*, of those the front of whose legs is covered with segments or unequal rings with lateral longitudinal furrows.

In 1781 our countryman Latham published his general synopsis, and in 1787 and in 1801 his two supplements appeared. In 1790, his Index Ornithologicus, in two volumes quarto, being an abridgment of his more extended work, was given to the public. Separating, like Willughby and Ray, the birds into two grand divisions, land-birds and water-birds, he arranges them under the following orders, which include 101 genera.

Land-birds.	Water-birds.
1. Accipitres.	7. Grallæ.
2. Picæ.	8. Pinnatipedes.
3. Passeres.	9. Palmipedes.
4. Columbæ.	
5. Gallinæ.	
6. Struthiones.	

In 1799 M. de Lacépède published his method, arranging 130 genera under 39 orders.

In 1806 Duméril, in his *Zoologie Analytique*, divided birds into six orders.

The following is Blumenbach's arrangement:

Land birds.	Water-birds.
1. Accipitres.	8. Grallæ.
2. Levirostres.	9. Anseres.
3. Pici.	
4. Coraces.	
5. Passeres.	
6. Gallinæ.	
7. Struthiones.	

In 1810 Meyer, in the 'Almanach des Oiseaux de l'Allemagne, par MM. Meyer et Wolff,' arranged them under eleven orders; and in 1811

Illiger divided them into seven orders, including 41 families. Then came Cuvier, who in his 'Règne Animal' (1817) published the following method:

1. Accipitres.
2. Passeres.
3. Scansores (Climbers).
4. Gallinæ.
5. Grallæ.
6. Palmipedes.

Vieillot, whose work is dated in 1816, though it did not appear till 1817, distributes birds into the following five orders:

1. Accipitres.
2. Sylvicolæ.
3. Gallinacei.
4. Grallatores.
5. Natatores.

Temminck's arrangement (1815-1820) consists of the following sixteen orders:

1. Rapaces.
2. Omnivores.
3. Insectivores.
4. Granivores.
5. Zygodactyles.
6. Anisodactyles.
7. Alcyons.
8. Chelidons.
9. Pigeons.
10. Gallinacés.
11. Alectorides.
12. Coureurs.
13. Gralles.
14. Pinnatipèdes.
15. Palmipèdes.
16. Inertes.

In 1825 Nicholas Aylward Vigors, Esq. (following out the principle adopted by William Sharp Mac Leay, Esq., in his *Horæ Entomologicæ*, a work of great learning and deep reasoning) proposed his arrangement of birds according to their natural affinities. 'I discovered,' says the author, in his paper in the 14th volume of the Transactions of the Linnæan Society, 'as I advanced, that the larger or primary groups were connected by an uninterrupted chain of affinities; that this series or chain returned into itself; and that the groups of which it was composed, preserved in their regular succession an analogy to the corresponding groups or orders of the contiguous classes of zoology. I equally detected the existence of the same principle in most of the subordinate subdivisions, even down to the minutest, to a degree at least sufficiently extensive to afford grounds for asserting its general prevalence.'

Thus, if his five orders

Insessores,
Raptores, [AVES.] Rasores,
Natatores, Grallatores,

be arranged round a common centre, the author conceives that they would be found to be mutually connected together, and that the plan which holds good in the general division will be found to be confirmed on examining the subdivisions.

The second order Insessores, for instance, he divides into five tribes,

Conirostres,
Dentirostres, Scansores,
[INSESSORES.]
Fissirostres, Tenuirostres,

in which he finds a similar connexion, as he also does in the five families into which he further separates each tribe.

In the same year M. Latreille published his method as follows:

Première section, les Terrestres.	Deuxième section, les Aquatiques.
1. Ordre Rapaces.	6. Ordre Echassiers.
2. Passereaux.	7. Palmipèdes.
3. Grimpeurs.	
4. Passerigalles.	
5. Gallinacés.	

These orders include 252 genera.

The method proposed by M. de Blainville in 1815, 1821, and 1822, and developed by his pupil, M. Lherminier, in 1827, is founded entirely on anatomical details, and principally upon the comparative development of the sternum. In the method of 1827, the birds are divided into the 'Normaux,' those whose sternum is furnished with a crest or keel more or less developed, and which have three bones at the shoulder, distinct, and simply contiguous. This 'sous-classe' contains thirty-four families from the first of the birds of prey to the last of the siwmmers. The second 'sous-classe,' or the 'Anomaux,' consists of those whose sternum is formed of two pieces originally separated, and uniting upon the median line to constitute a bony plate of variable form, but always without an osseous crest or keel, or brisket, and whose three shoulder-bones are distinct in youth, but anchylosed in the adult. To the 'Anomaux' belong but one family, the Cursores, comprehending the ostrich and its congeners.

In 1828 M. Lesson published his 'Projet,' wherein he commences with the two great divisions 'Terrestrial' and 'Aquatic,' and distributes the birds into nine orders, founded on the form of the toes, wings, and beak. The ninth order consists of 'Paradoxaux,' which in place of wings are furnished with anterior members armed with claws, the fingers being surrounded by (empâtés dans) a membrane, and have the body covered with decomposed and hairy feathers: this order contains but one genus, Ornithorhynchus? but to this last word the author adds a query.

In 1831 William Swainson, Esq., rejecting the quinarian theory above alluded to, which he had adopted in the year 1824, proposed (in the second part of the *Fauna Boreali-Americana* containing the birds) a new arrangement in these terms:

'1. Every natural series of beings, in its progress from a given point, either actually returns or evinces a tendency to return, again to that point, thereby forming a circle.

'2. The contents of such a circle or group are symbolically represented by the contents of *all* other circles in the same class of animals; this resemblance being strong or remote in proportion to the proximity or the distance of the groups compared.

'3. The primary divisions of every natural group, of whatever extent or value, are THREE, each of which forms its own circle.'

No one can read over the preceding compendium, which only embraces, be it remembered, the more prominent systems (for many omitted names will occur to the learned, those of Barrère, Frisch, Bonnaterre, and others, for instance), without perceiving that the great aim of modern science has been to produce the best natural arrangement. No sooner has one method been advanced and considered, than doubts have arisen, and another and another still succeeds. Cuvier expressed his dissent from all the systems which he had seen, and his conviction that the true arrangement was yet to be sought for.

That method which, founded on an intimate knowledge of the comparative anatomy, habits, and instincts of birds, unites them in groups that will bear the most strict application of those three tests, is the most likely, we may observe in conclusion, to approach the nearest to the system of nature.

To give a list of all the writers on the natural history of birds would be quite out of place in a work of this description; we shall therefore request the reader to be content with the following enumeration of some of the most celebrated authors in this department.

The ornithology of America and the West Indies has been given by Hernandez, Marcgrave, De Azzara, Sloane, Catesby, Vieillot, Wilson, Spix, Charles Bonaparte (Prince of Musignano), Audubon, Richardson and Swainson, and Nuttall.

That of Britain by Pennant, Lewin, White, Bewick, Montagu, Donovan, Selby, Mudie, and others.

That of Europe by Temminck; that of Germany by Meyer and Wolff: and Charles Bonaparte has taken up that of Italy. Gould's 'Birds of Europe' and Meyer's 'Illustrations of British Birds' are in a course of publication.

Le Vaillant has illustrated the birds of Africa, and of other countries.

The following names of some of those who have also distinguished themselves as general authors or particular illustrators will readily occur to the student who enters upon this branch of natural history: Albin, Audebert, Audubon, Barraband, Bechstein, Bennett, Blyth, Brisson, Brunnich, Buffon, Buhle, Cuvier, Daudin, Desmarest, Edwards, Fleming, Forster, Frisch, Gerardin, Gould, Gray, Gunther, Hardwicke, Herbert, Houttuyn, Hunter, Illiger, Jardine, Jenner, Leach, Lear, Lesson, Macartney, MacLeay, Markwick, Meyer, Naumann, Nilsson, Nozeman, Rennie, Rüppell, Sabine, Savigny, Selby, Sepp, Schaeffer, Shaw, Sheppard, Slaney, Sonnini, Spix, Stephens, Swainson, Sweet, Syme, Vieillot, Vigors, Wagler, Waterton, Whitear, Yarrell.

In conclusion, it may not be uninteresting to say a word or two upon the fossil remains of birds. 'We might have anticipated,' writes Lyell (*Principles of Geology*, vol. iii. p. 175, 3rd ed.), 'that the imbedding of the remains of birds in new strata would be of very rare occurrence, for their powers of flight insure them against perishing by numerous casualties to which quadrupeds are exposed during floods; and if they chance to be drowned, or to die when swimming on the water, it will scarcely ever happen that they will be submerged so as to become preserved in sedimentary deposits. In consequence of the hollow tubular structure of their bones, and the quantity of their feathers, they are extremely light in proportion to their volume, so that when first killed they do not sink to the bottom like quadrupeds, but float on the surface until the carcase either rots away or is devoured by predaceous animals.'

We will begin with an instance affording good evidence of the existence of a bird which, notwithstanding the concurrent testimony of authors, catalogues, and even specimens, the latter indeed now reduced to fragments has been considered by some the mere creature of imagination. M. Desjardins found, under a bed of lava in the Isle of France, the head, breast-bone, and humerus of a bird, which Cuvier pronounced to be part of the remains of the dodo. These bones were in the midst of others belonging to the large existing species of land-tortoise named *Testudo Indica*. [See Dodo.]

The hawks at the northern extremity of the rock of Gibraltar, among other rejectamenta of their food, drop into the fissures the bones of small birds, which gradually become incorporated into an osseous breccia.

Our attention is next drawn to the ossiferous caverns. In that of Kirkdale, for instance, Professor Buckland found, in company with the bones of carnivorous, pachydermatous, ruminant, and rodent quadrupeds, the remains of the raven, pigeon, lark, a small species of duck, and a bird of about the size of a thrush.

We next come to the marine supracretaceous rocks of the South of France, in the sands or upper strata of which M. Marcel de Serres found the remains of birds, accompanied by abundant relics of terrestrial and marine mammifers, reptiles, fish, some wood, and oysters and *Balani*.

The remains of birds also occur in the gypseous beds, and fresh-water marls of the supracretaceous group.

But perhaps the most interesting discovery relative to these remains was made by MM. Croizet and Jobert, who found in the fresh-water sands, clays, and limestone in the neighbourhood of the town of Issoire (Puy de Dôme), in company with the bones of quadrupeds, &c., the remains of three or four birds, and also their eggs, in a perfect state of preservation: M. Bertrand Roux, now M. Bertrand de Doue, had previously observed their bones in the fresh-water rocks at Volvic.

Upon the whole we may reckon nine or ten extinct species of birds in the Eocene period of Lyell. These belong to the birds of prey properly so called,—the gallinaceous birds, the waders, and the swimmers. Eggs of aquatic birds occur in the Eocene lacustrine formation in Auvergne.

We are not aware that any bones of birds have been recorded in strata of greater antiquity than the tertiary, with the exception of the fragments found by Mr. Mantell in the weald of Sussex. The so-called birds' bones of Stonesfield are the bones of Pterodactyles. [See Pterodactyle.]

BIRD'S-EYE VIEW, a mode of perspective representation, which may be divided into two kinds, *proper* and *improper*. The latter of these, the one most generally employed, differs from ordinary perspective delineation, in nothing else than in the horizon being taken much higher than usual; the horizontal line, and of course the point of sight, is either placed above the picture, or the level of the ground is supposed to be considerably below the base of the picture. The objects thus shown, whether buildings or landscape, or both combined, appear as they would do if viewed from some lofty station, from the summit of a building, from a terrace, tower, or any other eminence; but still the spectator is supposed to be looking in a straightforward direction, and the plane of the picture to be perpendicular to the natural horizon. Consequently, only distant objects can thus be shown, because, when looking in that direction, a person cannot possibly see objects immediately beneath him. He can do that only by looking *down upon* them; but in a picture there can be but one *instant* of view, nor can the point of sight be shifted at pleasure, by the eye being directed upwards or downwards, so as to alter the field of vision, and take different objects in succession. Whatever is shown in a picture must be supposed capable of being embraced by the eye at once; although in practice some little degree of license in this respect is occasionally allowable.

If it be desired to show the objects immediately below the spectator, so as to give a distant view of the tops of buildings so situated, and of parts that would otherwise be concealed from sight, recourse must be had to the first-mentioned mode, namely *proper bird's-eye* perspective. This is the reverse of that employed for ceiling-pieces, termed *di sotto in su*; for as there objects are fore-shortened as seen from below, so in the *bird's-eye* they are fore-shortened, as if viewed from above. This species of '*bird's-eye*' might therefore with great propriety be distinguished by the name of *prone perspective*, or looking downwards; and the *di sotto in su*, by that of *supine perspective*, or looking upwards. In like manner as in ceiling perspectives, the plane of the picture becomes parallel to the natural horizon, instead of vertical, so does it in a proper *bird's-eye* view; with this difference, that in the former case the eye is beneath the picture and looking up to it; in the latter, over it, and looking down upon it; at least, if not exactly horizontal, the plane of the picture must be more or less inclined, accordingly as the eye is supposed to look down more directly or obliquely; because the *plane of projection* or picture must be assumed as perpendicular to the central ray from the eye. The relative position of objects to each other and to the picture, and of the picture to the eye, are the same in this as in ordinary perspective, the sole difference being that of the spectator's own situation. This will be apparent if we look into a hollow cube, or box, open on one side: it matters not whether it be open on one of the upright sides, or on the top. In either case the planes or sides perpendicular to the open side, and the one parallel to, or facing it, will have the same perspective appearance; only in the one case the plane facing the spectator will be vertical, in the other horizontal. In a picture or drawing this will depend entirely upon the artist—whether he chooses to represent the plane parallel to the picture as horizontal, that is the ground or floor, and the other planes perpendicular to the ground; or that parallel plane and two of the adjoining planes upright, and the other two horizontal. Again, were a hole bored through the ceiling of a lofty room, a person looking down through it would have a perfect or proper bird's-eye view both of the apartment and its furniture. Hence, it is obvious that in such representation the floor would answer to what in the common mode of perspective would be the side or end of the room facing the spectator; also that the vertical lines of the sides of the room, of doors, windows, legs of chairs, &c., would vanish to some point in the line or plane passing through the eye, exactly as the horizontal lines would do if they were seen according to the usual position. For unless the lines, in this case intended to represent upright ones, were made to vanish, those planes or walls would not be fore-shortened; and unless that were done they could not be viewed, but the whole would be reduced to a mere plan of the room: just as a common upright view would be reduced to a section or geometrical elevation, if the planes representing the other two walls with the ceiling and floor were not shown perspectively or fore-shortened. Yet, although such perspective, or bird's-eye view, would be correct in itself, it would seem too fanciful and unnatural, if not positively distorted, because the objects would be shown under such very different circumstances from those according to which they are really seen; consequently, such kind of views would be quite unpictorial, and merely matters of curiosity. They might nevertheless occasionally be found useful as explanatory diagrams, or drawings, whenever it should be required to show the effect of an interior, as beheld from a lofty upper gallery, not viewed in a cross or straightforward direction, but by looking down into the lower area of the apartment. This *prone perspective* might also be applied for the purpose of giving a map-like, yet graphic view of a group of buildings and their locality. As a picture, indeed, such view would be extravagant, although as a picture-map it would have something to recommend it. Even the more usual kind of bird's eye perspective, or view with a very elevated horizon, is by no means the best calculated for picturesque effect, since it brings those parts of an edifice into view which are intended to be concealed, and otherwise greatly takes off from the architectural effect; causing the building so viewed to appear too much like a small model placed upon a table.

BIRD'S-FOOT TREFOIL. [See Ornithopus.]

BIRD'S-MOUTH. [See Moulding.]

BIRD'S NEST. [See Lathræa and Neottia.]

BIREN. [See Anna Iwanowna of Russia.]

BIRGUS (zoology), a genus of long-tailed crustaceous animals, approaching the hermit crabs (*Pagurus*) established by Leach. The following are the leading characters:—Middle antennæ having their second articulation crested or tufted; feet of the first pair of legs unequal, terminated by pincers or knob-claws; feet of the second and

third pair terminated simply, in other words, by a single nail; fourth pair smaller and didactylous, or terminated by two fingers, one moveable; fifth pair rudimentary, very small, but didactylous; carapace somewhat in the form of a reversed heart, with the apex pointing forwards; post-abdomen or tail orbicular, crustaceous above, the plates being subannular or rudiments of rings.

There are two species recorded: and of these *Birgus Latro*, Leach, *Pagurus Latro*, Fabr. and Lam., *Cancer Latro*, Linn., *Cancer crumenatus*, *Beurskrabbe* (purse crab) of Rumphius is the largest. Its rostrum is terminated by a single point. The pincers are red, the left being much larger than the right, and both deeply toothed. The feet of the three next pair are toothed on the edges, and marked with undulated streaks. It is a native of Amboyna and other neighbouring islands, where it is said to inhabit the fissures of rocks by day, and to come forth at night to seek its food on the beach. Mr. Cuming found it sufficiently abundant in Lord Hood's Island in the Pacific, but there the purse-crabs dwelt at the roots of trees, and not in hole in the rocks. When he met them in his road, they set themselves up in a threatening attitude and then retreated backwards, making both at first and afterwards a great snapping with their pincers. There appears to be a tradition among the natives that it climbs cocoa-nut trees (*cocos nucifera*) in the night to get the cocoa-nuts. Linnæus, Herbst, and Cuvier, repeat this story, which, as Owen observes in the Proceedings of the Zoological Society for 1832 (part 2. p. 17.), is confirmed in a degree by Quoy and Gaimard, who relate that individuals of this species were fed by them for many months on cocoa-nuts alone, and still more amply by the observations communicated to him by Mr. Cuming, who states that these purse-crabs climb the *Pandanus odoratissimus*, a kind of palm, for the purpose of feeding on the small nut that grows thereon, and that he saw them in the tree.

Linnæus gives the Antilles as the locality of this purse-crab, as well as Amboyna, and quotes Rochefort's *History of the Antilles*, 1. c. 21, 'Boursires.' In the text of Rumphius's *Amboinsche Rariteit-Kamer*, Book 1. p. 9, is a similar quotation.

Neither Sloane, Browne, Hughes, nor Catesby, make any mention of this species, nor indeed of the genus; and on turning to Rochefort, upon whose authority Linnæus and others have evidently rested for the assertion that purse-crabs, properly so called, inhabit the Antilles, we think that it will appear that there is no foundation for giving them such a locality, so far at least as Rochefort is concerned, but that those who gave him as authority, either read his book very hastily, or, without reading the passage cited at all, made the quotation as soon as their eye fell upon the word 'Boursières,' not 'Boursires,' as it is written in the Amboinsche Rariteit-Kamer, and also by Linnæus, who probably copied the quotation from the *Amboinsche Rariteit-Kamer*.

Rochefort's book, 'Histoire naturelle et morale des Iles Antilles de l'Amérique,' 4to. Rotterdam, 1681, is not in the hands of every one, and therefore we offer no apology for giving the passage, on reading which we have ventured to call in question the accuracy of Linnæus.

There is no mention of 'Boursires,' at the place quoted by Linnæus, but at 1. c. 22, p. 57, the term '*Crabes Boursières*,' appears not as a name for a species, but as the name given by the inhabitants to some of the *land-crabs* (Tourlouroux) when they are in a soft state, after moulting and before their new crust is hardened.

Speaking of some of these crabs under the name of '*Crabes peintes*,' Rochefort thus proceeds:

'Ce qui est de plus considerable en ces crabes, c'est qu'une fois l'an, assavoir, après qu'elles sont retournées du voiage de la mer, elles se cachent toutes en terre, durant quelques six semaines: de sorte qu'il n'en paroit aucune. Pendant ce tems-là, elles changent de peau, ou d'écaille, et se renouvellent entierement. Elles poussent alors de la terre si proprement à l'entrée de leurs tanieres, que l'on n'en apperçoit pas l'ouverture. Ce qu'elles font pour ne point prendre d'air. Car quand elles posent ainsi leur vieille robe, tout leur corps est comme à nud, n'étant couvert que d'une pellicule tendre et delicate, laquelle s'épaissit et se durcit peu à peu en croute; suivant la solidité de celle qu'elles ont quittées.

Monsieur du Montel rapporte, qu'il a fait creuser à dessein en des lieux où il y avoit apparence qu'il y en eut de cachées. Et en ayant rencontré en effet, qu'il trouva qu'elles étoyent comme envellopées dans des feüilles d'arbres, qui sans doute leur servoient de nourriture et de nid durant cette retraite: mais elles étoient si languissantes et si incapables de supporter l'air vif, qu'elles sembloient à demy mortes, quoy que d'ailleurs elles fussent grasses et tres-delicates a manger. Les habitans des Iles les nomment pour lors *Crabes Boursieres*, et les estiment beaucoup. Tout auprès d'elles il voyoit leur vieille depoüille, c'est à dire, leur côque, qui paroissoit aussi entiere que si l'animal eut encore été dedans. Est ce qui est merveilleus, c'est qu'à peine, quoy qu'il y employast de fort bons yeus, pouvoit il reconnoitre d'ouverture ou de fente par où le corps de la beste fust sorty, et se fut dégagé de cette prison. Neantmoins, apres y avoir pris garde bien exactement, il remarquoit en ces dépoüilles une petite separation du costé de la queuë, par où les crabes s'étoient d'évelloppées.'

'What is the more worthy of note relating to these crabs is, that once a year, namely, after they are returned from their journey to the sea, they hide themselves entirely in the earth, for some six weeks, so that not one appears. During this time they change their skin, or crust, and renew themselves altogether. They place the earth at this season so dexterously at the entrance of their holes, that one cannot perceive the opening. This they do that they may not be exposed to the air. For when they thus throw aside their old garb, the whole of their body is as it were naked, being only covered by a thin and delicate skin, which thickens and hardens by degrees into a crust as solid as that which they have left. Monsieur du Montel reports that he caused people to dig on purpose in those places where there was any appearance of their lying hid, and having met with some of them, that he found that they were enveloped as it were in the leaves of trees, which without doubt served them for nourishment and for a nest during this retreat: but they were so languid and so incapable of supporting the fresh air, that they seemed half dead, though in other respects they were fat and very delicate food. The inhabitants of the Isles call them at this period *purse crabs*, and esteem them much. He saw quite close to them their old covering, that is to say, their shell, which appeared as entire as if the animal had been still within. What is wonderful is, that though he employed very good eyes, he could scarcely observe the opening or slit whence the body of the animal had come forth, and had disengaged itself from this prison. Nevertheless, after having taken great care, he remarked in the empty shells a small separation near the tail, by which the crabs had extricated themselves.'

Then follows the most approved way of dressing these land-crabs for the table, a mode which is still in practice with little variation in the West Indies at the present day.

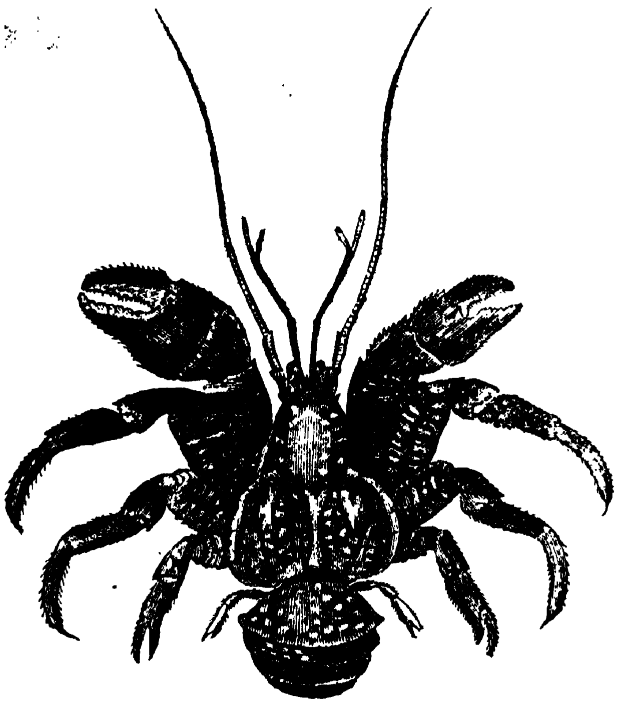
In a MS. entitled 'Mémoires en forme de Dictionnaire contenant l'histoire naturelle notamment de Cacao, l'Indigo, le Sucre, et le Tabac, Par M. * * *, Inspecteur pour la Compagnie de Chandernagor,' in the possession of a friend of the author of this article, there is a very full account of the land-crabs (Tourlouroux) of the Antilles, and the writer of the MS., speaking of their condition after they have thrown off their old crusts, says 'Si on les prend alors, on les trouve couvertes seulement d'une petite peau rouge, tendre et mince comme du parchemin mouillé, elles sont bien plus délicates qu'en tout autre tems: on les appelle alors *Crabes Boursieres*.'—'If they take the crabs then, they find them covered only with a slight red skin, tender and delicate as moistened parchment: the crabs are then much more delicious than they are at any other season: they call them at that period *purse crabs*' (tom. ii. p. 525). The MS. is without date, but was written after the publication of Labat's works, which the writer quotes.

There is a smaller species (*Birgus laticauda*), which is a native of the Mauritius. *Birgus Latro*, which grows to a large size, is said to be excellent food when properly prepared. It was a favourite diet with the natives of Lord Hood's Island, but Mr. Cuming did not taste it.

There is a specimen in Room 9, of the British Museum, case 'Crustacea,' 6: and another in the museum of the Zoological Society.

The locality of *Atya scabra* (see ATYA), which does not appear to have been known to Dr. Leach, has been given by the late Rev. Lansdown Guilding, who has stated that they occur in incredible numbers in the mountain streams of St. Vincent's, in company with *Palæmon Carci-*

mus, where they are caught by the negroes in baskets, for the market.



[Birgus Latro.]

BIRKENFELD, a principality of Germany, which formerly gave its name to a collateral branch of the ducal house of Deux-Ponts or Zweibrücken, but now belongs to the dukes of Oldenburg. It lies in the west of Germany, on the left bank of the Rhine, in what is called the valley of the Nahe, and between the principality of Lichtenberg, the Prussian province of the Lower Rhine, and the Bavarian circle of the Rhine. It occupies an area of about 160 square miles, and has a population of about 25,000 souls. The soil is unsuited to husbandry, its surface being covered with forests and mountains; it possesses iron-mines, and produces a variety of semi-precious stones, such as the jasper, agate, chalcedony, &c., which are wrought up into articles of luxury, chiefly for exportation, and produce a return of 12,000*l.* to 13,000*l.* a year. Considerable quantities of stones are ground and polished, particularly at Oberstein and Idar, and forty-one mills are employed in this branch of manufacture. But the principal occupation of the inhabitants is cattle-breeding: some wine also is made. Under the treaty of Vienna in 1815, Birkenfeld was, in 1817, transferred by Prussia to the Duke of Oldenburg. The 'Code Napoleon,' with some few exceptions, which render it conformable with the Oldenburg laws, still subsists as the law of the land. Birkenfeld is divided into three districts or bailiwicks, at the head of which is placed an Amtmann, or high-steward. The principality derives its name from Birkenfeld, a market-town on the Zimmerbach, situated in the Hundsrück, the range of country between the Rhine and Nahe; it has a castle, a seminary for educating teachers, 264 houses, and about 1800 inhabitants. There are two iron-mines in the neighbourhood, and the town has very considerable fairs for horses. Oberstein on the Nahe is also a market-town, and has a castle and about 1500 inhabitants, who are chiefly employed in manufacturing articles in semi-precious stones, and grinding and polishing them.

BIRKET-EL-KEROUN, the antient lake Mœris, a large lake in the province of Faïoum in middle Egypt, to the west of the great valley of the Nile, from which it is separated by the range of the Libyan mountains. [See FAIOUM.] A canal which is a branch of the Bahr Yussoup, carries the waters of the Nile at the time of its rise into the Faïoum, through a gap in the ridge, near Benisouef, and after serving the purposes of irrigation, the superfluous waters discharge themselves into the lake Keroun. The lake is in the form of a crescent, the convex part of which faces the N.W., and it is bounded on that side by a ridge of rocks which separates it from the sandy desert. Along its S.E., or concave bank, is the fertile plain of the Faïoum, once irrigated with numerous canals and covered with villages. The present number of villages in the Faïoum is said not to exceed seventy. The length of the lake from one horn of the crescent to the other is above thirty miles, and its greatest breadth in the centre is about five miles. The water is brackish, but it abounds with fish. (See Browne, Belzoni, and the French *Description of Egypt.*) It is said by Herodotus (ii. 149) that the waters of the lake Mœris flowed out into the Nile for six months in the year, and during the other six months the waters of the Nile flowed into the lake. This emission of the waters of the lake has been supposed by some to have taken place through a canal near Tamieh, at the N.E. extremity of the lake, where the French accounts say there is a valley or depression in the direction of Jizeh. (See the account of the French engineers, in *Description de l'Egypte, Etat Moderne*, vol. ii.) But if the level of the lake be about 120 feet lower than the bank of the Nile at Benisouef, as Mr. Wilkinson states it to be, the account of Herodotus must be incorrect as applied to the lake, though it would be true as applied to the canal. The description of this lake in Herodotus is very confused, as appears from his considering it a natural excavation. The description in Strabo also (p. 810, Causab.) is not without its difficulties, though he appears to distinguish better than Herodotus between the canals, which were an artificial work, and the lake itself. (See Herodotus; Strabo; Pliny, v. 9, &c.; Wilkinson's *Topography of Thebes.*)

BIRKET-EL-MARIOUT, the lake Mareotis, or Marea Palus of the antients, a large lake to the south of Alexandria in Egypt, which once washed the city walls on that side. It communicated by a canal with the Canopic branch of the Nile. It also communicated by another canal with the sea at Port Eunostus, or the old harbour of Alexandria. [See ALEXANDRIA.] During the decay of that city, after the Arab conquest, the canals being neglected, the lake Mareotis ceased to receive the waters of the Nile, and its own waters gradually receded from their banks. When Belon visited Egypt, in the sixteenth century, soon after the Ottoman conquest, the lake had receded about two miles from the walls of the town, but it was still a large piece of water, the banks of which were planted with date-trees, and had a verdant and pleasant appearance. (Belon's *Travels.*) In the course of centuries however the lake became gradually dried up; and when Savary visited Egypt in 1777, its former bed was a sandy waste. In 1801, during the French invasion of Egypt, the English army, in order to distress the French garrison of Alexandria, cut the narrow isthmus which separates the bed of the Mareotis from lake Mádieh or Aboukir, when the sea-water flowed in and covered again the Mareotis to the extent of about thirty miles in length, and about fifteen in its greatest breadth. After the peace, Mehemet Ali Pasha re-established the isthmus, and restored the old canal of Alexandria, which communicates with the Rosetta branch of the Nile at Foua, and which has been called the canal Mahmoud, in honour of the reigning sultan. The depth of the lake Mariout varies from fourteen feet in its northern part near Alexandria, to four and three feet towards its southern extremity. To the westward the lake forms a long shallow projection, running nearly as far as the tower of the Arabs, and is only separated from the sea by a narrow isthmus. (See *Atlas* in French *Description of Egypt.*)

BIRMA, or the **BIRMAN EMPIRE**, of which other names are—Burma, Brahma, Buraghmah, Boman, Barma, and Varma, called also the kingdom of Ava, extends over more than one-fourth of the surface of the Peninsula beyond the Ganges, and contains nearly the double of the area of the British islands. According to Crawfurd, it may be conjectured to contain in round numbers, about 184,000 square miles. But this is mere conjecture, its northern and eastern boundaries being imperfectly known. It is, however, certain that the most northern point of the empire extends considerably to the north of the 27th parallel, and probably passes the 28th, in the country of the Bor Khamti (Wilcox). We have still less information respecting the portion of Upper Lao, which is subject to the king of Ava. Berghaus, following Sir Francis Hamilton, extends it to 100° E. long., in the parallel of 22°. Farther south, where the river Saluen or Saluaen divides it from the kingdom of Siam and the English possessions of Martaban, the eastern frontier lies between 98° and 99° E. long. On the south, where it is bounded by the gulf of Martaban, it extends to 15° 45′ lat., and on the west, where it borders on Aracan, it probably does not run west of 93° 20′ long. The length of this country from the western mouth of the river Irawaddi to its source in the country of the Bor Khamti, may be about 950 miles. Its width to the south of the parallel of 24° amounts at an average to 220 miles, but to the north of it only to 180 miles. In this estimation, Upper Lao is not taken into account, which, between 21° 30′ and 23° N. lat., extends perhaps 100 miles farther.

The Birman empire has about 240 miles of sea-coast along the gulf of Martaban, extending from the cape of Kyai-kami, near the British settlement of Amherst in Martaban, to Cape Negrais, the southern extremity of the Aracan Mountains. The whole of this coast is low, marshy, and broken by at least twenty considerable channels of rivers or arms of the sea.

The Birman territory is divided from the British province of Aracan by a range of mountains called by Europeans the Aracan Mountains, but by the natives Anaupectaumeaw (Anupectu-mew) or the Great Western Range; also Yeomadong or Romapokung Mountains. It begins at 16° N. lat. with Cape Negrais (Negraglia of Sangermano), called by the Birmans Modaen, and extends in a northern direction with a slight bend westward to the northern boundary of Aracan, about 21° N. lat. The southern part of it, extending from 16° to 18° between the Delta of the Irawaddi and the Gulf of Bengal, presents one continued ridge of craggy rocks of a moderate height, whose bare cliffs of a reddish colour generally approach so near the sea as not to leave any intermediate level ground between them and the ocean. This portion of the range is called by the Birmans Modaen Garit, from the Birman name of Cape Negrais. To the north of 18° N. lat. the mountains recede farther from the shore, and here begins the level country of Aracan on the west, while on the east extends the valley of the river Irawaddi. In this tract the mountains rise to a greater height, and between 20° and 21° N. lat. the highest summits are thought to attain 6000 feet above the level of the sea. Their western slope towards the plains of Aracan and the Gulf of Bengal is very rapid; but to the east they descend in a kind of terraces formed by three or four or more lateral ridges of less height, which however present rapid declivities on the east and west.

Three mountain-passes traverse the Anaupectau-meaw Mountains and connect Birma with Aracan. The most southern, called the Tongho Pass, leads from Padaong Mew on the Irawaddi, 18° 31′, to Tongho in Aracan, 19° 15′ N. lat. The highest point of the pass is 4692 feet above the sea, and many parts of it are so difficult that it cannot be travelled by beasts of burden. The eastern ridges are commonly covered with bamboo jungle, but on the western declivity there are extensive forests of lofty trees. The second pass connects Sembeghewn, in the valley of the Irawaddi (20° 40′ N. lat.), with Aeng in Aracan (19° 53′ N. lat.), and is called the Nairiengain Pass, from a small stockade of that name erected on the highest part of it. The Birmans used it as a military road to Aracan, and had rendered it passable for beasts of burden by building bridges over the precipices and cutting away the rocks in many places. Before the occupation of Aracan by the British, a considerable commerce was carried on by means of this road. This commerce is said to have occupied 40,000 persons, but this number seems greatly exaggerated. This road is now rapidly falling into decay, being exposed to the destructive influence of the south-west monsoons. The third mountain-pass begins likewise at Sembeghewn and leads to Talak in Aracan, 20° 10′ N. lat.; by this pass the Birmans entered Aracan at the time of the conquest of that country. But it seems that they did not use it afterwards, probably because that which leads to Aeng presented less difficulties. We have no information of any kind respecting this road.

To the north of 21° N. lat. the mountains appear to decrease considerably in height, but at the same time they divide into several ranges, running mostly north and south, and occupying a considerable tract of country. This rugged highland, which extends between and along the upper branches of the Aracan river, the Surmah or river of Silhet, and some tributaries of the Kyan Duayn, a branch of the Irawaddi, is inhabited by savage nations which are independent of Birma and not subject to any of the princes protected by the British. The principal of these tribes are the Kookis, and on that account this country is called the highland of the Kookis. It has not been ascertained how far the authority of the court of Ava extends into this region.

Thus far the western boundary of the Birman Empire is formed by mountain-ranges. The remainder, from 24° N. lat. up to the Nagas Mountains, which divide it from Asam, is bounded by the territories of the Raja of Munipoore, a prince who has placed himself under the protection of the British, and whose country extends eastward as far as the Nampagna River, a branch of the Khyanduaen, which constitutes the boundary line of the Birman Empire in this part.

The northern extremity of Birma is again separated by mountain ranges from the neighbouring country. The ranges called Patkoi or Poapuo Mountains, which rise to a great height, and the still higher Langtan Mountains, divide it from Asam and the countries along the Upper Brahmapootra. In the high summits, whence the Brahmapootra descends to the west, are also the sources of the Irawaddi, which river may with great propriety be called the river of Birma, as all the countries drained by it and its tributaries belong to that empire, with the single exception of the southern part of Munipoore. It has lately been ascertained that no part of the Chinese empire extends so far west as the banks of the Irawaddi. We shall, therefore, follow the course of this river, and make some observations on the countries drained by it.

The different opinions respecting the source of the Irawaddi, and its identity with the Zangbo-tsin of Tibet, will be examined under the head of BRAHMAPOOTRA. Lieut. Wilcox was informed that its source was at no great distance from that of the Brahmapootra, to the south of it, and about fifty miles from Manchi, a town of the Bor Khamti. The river soon issues from the mountains, and enters a plain, or rather an extensive valley, occupied by the Bor Khamti. The country here forms a perfect level, partly cultivated, and partly studded with clumps of trees and bamboos, and intersected by a number of rivulets. The Irawaddi opposite the town of Manchi is only eighty yards broad, and fordable. The plain on its banks is 1855 feet above the level of the sea.

From the country of the Bor Khamti the Irawaddi continues its southern course through three degrees of latitude to Bhanmò, through countries about which we have scarcely any information at all. It would seem that high mountain-ranges frequently close upon it, and at other places plains of considerable extent border its banks. Such on its western side are the Samokhtura Mountains and the plain of Mungkung, extending on both sides of the Mungkung river far to the west. The mountain-ranges are partly in possession of the Singfos, a powerful mountain tribe which also occupies a considerable portion of the mountains south of Asam, and everywhere maintains its independence in the mountain-fastnesses. The ranges which divide this portion of Birma from the Chinese province of Yunnan seem to be exceedingly rugged, and the difficulties encountered in traversing them have always frustrated the attempts of the Chinese to conquer the countries along the Irawaddi. From Manchi to Bhanmò the river falls in the course of about 350 miles 1300 feet, being at the latter place only 500 feet above the sea. This accounts for the river being unnavigable for the greater part of that distance, except for small canoes.

Bhanmò is a place of some note, being the principal market for Chinese goods, which are brought to this town on horses and asses. Below Bhanmò the river suddenly turns to the west, but soon resumes its southern course, and thus continues to a few miles east of Amarapoora. The river flows in this tract through a valley of no great breadth, the mountains inclosing it on each side, and frequently advancing to the very banks of the river, especially on the east. Between Bhanmò and Amarapoora the river is only navigable for small trading boats.

Above Amarapoora the Irawaddi begins to decline to the south-west, and from that town it runs in a western direction for nearly a hundred miles as far as the mouth of the Kyan-Duayn. With the change of the river the face of the country is changed. Issuing from the narrow valley it enters a very wide one, or rather a plain. Along its banks, and especially on the southern side, the level country extends for many miles, in some places even to thirty, and even then is not bounded by high mountains, but by moderate hills, which increase in height as they recede farther from the river. Considerable portions of this plain are covered by the inundations of the river in the wet season. On the north side of the river the hills are at no great distance from the banks, and here the ground is impregnated with muriate of soda and with nitre, of which great quantities are extracted. To the north of these hills is the lake of Nandagando, which extends in length from S. to N. above thirty miles; the country about it presents an undulating surface. At a considerable distance east of the mouth of the Kyan Duayn river the hills cease, and an open slightly-undulating country extends to its banks and beyond them. This portion of the valley of the Irawaddi seems to be the most fertile and most populous part of the Birman empire, and offers at the same time the most easy communication with its internal provinces. The Irawaddi opens an easy access to the north as well as to the south, and its two greatest tributaries, the Myit-ngé and the Kyan-Duayn, with the provinces lying east and north-west of the valley. The seat of government has for a long time been fixed in this central part of the empire, and here are the four capitals, Ava, Amarapoora, Sagaing (Zagain), and Monchabo.

The Myit-ngé, or 'Little river' (so called in comparison with the Irawaddi), which is named by Sir F. Hamilton the Mringngaen, rises in the Chinese province of Yunnan, and runs a little to the west of south, nearly parallel with the Irawaddi, probably for more than three hundred miles. In this course it drains an elevated but wide, fertile, and well-peopled valley, in which its waters are employed to irrigate the cultivated lands. Arrived at the parallel of Ava, where it is still about eighty miles from the capital, it suddenly turns to the west, and continues generally in that direction to its mouth. Near its entrance into the Irawaddi it divides into two branches, of which the eastern retains the name of Myit-ngé; the western is called Myit-tha. On the island formed by these two branches of the Myit-ngé, the present capital of the country, Ava, is built, more especially near the mouth of the eastern or principal branch, which at this place is from 150 to 200 yards broad and very deep. It must be considered as the proper port of the capital, and a considerable number of war-boats are always stationed there.

Having given an account of the former capital, Amarapoora, under that article, we shall here insert a short description of the present capital, Ava, and the antient capitals of Sagaing and Monchabo.

Ava is called by the natives Angwa, meaning a fish-pond, because the town was erected on a place where such a pond had formerly been. This name has been corrupted by the Hindus and Malays into Awa, and by Europeans again into Ava; but in all public writings it bears the name of Ratnapoora, or the City of the Pearl.

Ava consists of the inner town or city and the outer town. The city occupies the north-east angle of the whole, and extends nearly up to the mouth of the Myit-ngé river. The outer town lies to the south-west of the city. The whole is surrounded by a brick wall fifteen and a half feet high and ten feet in thickness, with innumerable embrasures about the distance of five feet from each other; on the inside of the wall there is thrown up a bank of earth, forming an angle of about forty-five degrees. The ditch round this wall is inconsiderable, and during all the dry season fordable in every part. The Myit-ngé on the east face forms a considerable defence on that side. The city is enclosed by a separate wall, which is better constructed than that of the large town. The ditch on the south and west faces of it is also broader and deeper and not fordable; the east side is defended by the Myit-ngé, and the north by the Irawaddi. It is mostly occupied by the palace of the king, the Rung d'hau, or hall of justice, the Lut d'hau, or council chamber, the arsenal, and the habitations of a few courtiers of distinction. All these buildings are situated in a square, which is surrounded by a strong well-built wall about twenty feet in height; and on the outside of this wall and at no great distance is a teak-wood stockade of the same height as the wall.

The circumference of Ava round the walls and excluding the suburbs, is about five miles and a half. In general the houses are mere huts thatched with grass. Some of the dwellings of the chiefs are constructed of planks, and tiled; there are probably in all not half a dozen houses constructed of brick and mortar. Poor as the houses are, they are scattered over the extensive area of the place, and some large quarters are, indeed, wholly destitute of habitations. There are in the town eleven markets or bazars, composed of thatched huts and sheds, but well supplied with commodities, at least with reference to the wants and habits of the people. Paltry as the town is, it has a splendid and imposing appearance at a distance, which it owes to the great number of temples, all surmounted by tall, white, or gilded spires.

The town of Ava, which twice before had been the capital of the Birman empire, became so a third time in 1822, and must therefore be considered as a new town. This accounts for its small population, which Crawfurd estimated in 1826 at only 25,000 inhabitants.

The town of Sagaing, or Zakkain, which was once the seat of government, is situated on the opposite side of the Irawaddi, directly fronting Ava. The river is at this place 1050 yards wide. On the river face the town has a brick wall, which extends for about half a mile: the height of this is not above ten feet; but it has a *terre pleine*, parapet, and embrasures, like the wall of Ava. On the land side there are no defences whatever. The town extends along the Irawaddi more than a mile and a half, but its depth towards the hills is very inconsiderable. It consists of mean houses thinly scattered among gardens and orchards. On the site of the town and its environs there are innumerable temples, ruinous, old or modern, which give it a striking appearance from a distance.

Moksobo, commonly called by Europeans Monchabo, is about fifty-two miles from Ava in a north-west direction, and at no great distance from the western shores of the lake of Nandagando. It is a walled town, and still a place of considerable traffic and population. In 1756 Alompra, the founder of the present dynasty, who was a native of the place, made it his capital, and gave it the Pali name of Ratna-sinha, or 'the pearl lion,' or lion of pearls.

Below the town of Ava the Irawaddi is a majestic river, whose breadth in some places extends to four miles and upwards, but it is commonly divided into many channels by sandy and uninhabited islands, which are inundated when the water of the river rises to its greatest height. Near the place where the river declines to the south-west begins an extensive island, called Ala-kyun or 'middle islands,' which extends for many miles to the confluence of the Kyan Duayn with the Irawaddi. It is the largest of all the islands in the river, high and not exposed to inundation, and consequently well cultivated and inhabited. Opposite this island on the eastern bank of the Irawaddi is the town of Yandabo, where the peace was concluded between the Birmans and English in 1826.

The Kyan Duayn, by far the largest of the tributaries of the Irawaddi, drains an immense country, its further branches rising in the Patkoi Mountains and the Samokhtura, where these two chains meet the Langtan Mountains. The numerous streams which descend from these ranges unite in a country called Hukhung, which, according to our imperfect information, seems to be a large plain enclosed on all sides by mountains, but fertile, and offering extensive tracts for colonization. Hukhung lies between 26° and 27° N. lat. The river formed in this plain receives the name of the Tenni, and passes afterwards through a nearly unknown mountainous country in a narrow vale, till near 25° N. lat. it enters a wider valley, and unites with the Nampagna, which latter, for the greatest part of its course, constitutes the boundary line between Birma and the kingdom of Munipoore. After this junction the country on the river begins to resemble an undulating plain, especially on the eastern banks of the river, which is here called the Ningthi. On the western banks the country belongs to Munipoore, and is much more hilly, and in some parts even mountainous. South of 24° N. lat. Birma extends on both banks of the Ningthi, which is here increased by the waters of the Kongba, or river of Munipoore, which comes from the west. This latter river runs nearly parallel to the Ningthi for about 200 miles from north to south, but then, suddenly turning to the east, breaks through the chain of the Danghii Hills and unites with the Ningthi. After this junction the river begins to be called Kyan Duayn, and to the west of it, at no great distance from its banks, rises a range of hills, the Danghii Hills, or Gnambeandong, which are of moderate height, but very barren and bleak. The level country on its eastern banks extends to a considerable distance, is in general well peopled, and contains extensive tracts of cultivated ground. It is bounded eastward by an undulating country, which becomes hilly only near the banks of the lake of Nandagando. The Kyan-

Duayn in the wet season is a considerable river, but in the dry season its mouth is not more than 200 yards wide. The whole of its course probably exceeds 600 miles.

From its confluence with the Kyan Duayn the Irawaddi continues, in general, its south-western direction, but with numerous bends on both sides, to the neighbourhood of Sembeghewn, where it turns to the south, and continues in that direction to the town of Padaong Mew. Hence it runs to the south-east, and after a few miles passes the promontory of Kyaok-ta-ran, and enters the low countries which form its delta. This promontory constitutes the boundary between the antient kingdoms of Ava and Pegu. The population, which north of it consists principally of Birmans, or Mrammas, is to the south of it almost entirely composed of Talains and Karians. In this part of its course the river sometimes expands to a width of three or four miles, and at other places it narrows to 600 or 800 yards. At the more narrow places it is commonly very rapid, and the navigation is also rendered difficult in the dry season by numerous shoals and a few ledges of rocks which traverse the bed of the stream.

The valley of the Irawaddi, south of its confluence with the Kyan Duayn, to the town of Melloon (south of 20° N. lat.), is, in its general aspect, hilly, and very uneven, but the hills rise to no great height, at least not near the river, and are in many places separated by tracts of flat country, which in some places are extensive and well cultivated. South of Melloon the hills approach nearer the river, and often form its banks. They are in most places covered with forest-trees of considerable size, among which teak-trees are frequent. Cultivation is confined to the narrow flat tracts, which here and there separate the hills from the river.

The most remarkable place in this part of the valley of the Irawaddi is Pughan or Pagham Mew (north of 21° N. lat.), which, according to Birman chronology, was the seat of government for above 1200 years. It contains the most remarkable and interesting remains of antiquity in the Birman dominions. The ruins extend for at least eight miles along the bank of the river, and occupy frequently a depth of three or four miles. In this space the number of temples is quite surprising. They are of all sizes, and in various states of preservation. Some have been restored, and are still used as places of worship; others are tolerably complete, though neglected: but many are mere ruins, and a considerable number are heaps of mouldering brick.

Farther to the south (about 20° 30′ N. lat.) the eastern banks of the Irawaddi offer a remarkable natural phenomenon, the famous wells of petroleum, which are situated near a village called Re-nan-khyaung, about three miles from the banks of the river. The wells, which are stated to be about 300 in number, occupy altogether a space of about sixteen square miles. The country here is a series of sand-hills and ravines. The hills are either covered with a thin soil, or altogether bare, the trees, which are sparingly scattered over them, not rising beyond twenty feet in height. The pits from which the petroleum is obtained are artificial perpendicular shafts, commonly from 200 to 250 feet deep, the greatest depth not exceeding 300. At the bottom of the pits the liquid seems to boil; but whether from the emission of gaseous fluids, or simply from the escape of the oil itself from the ground, is not yet determined. The oil is drawn from them by common earthen pots. When taken out of the well it is of a thin, watery consistence, but thickens by keeping, and in cold weather it coagulates. It has a pungent, aromatic odour. Immense quantities of this oil are annually consumed in the Birman empire. It is used for the purpose of burning in lamps, and smearing timber to protect it against insects, especially the white ant, which will not approach it. The quantity exported to Coromandel and the Malay peninsula is trifling.

The country near the petroleum wells is also remarkable for its petrified wood and its fossil bones. The petrified wood is abundantly scattered over the whole country between Prome and Ava. It is commonly beautifully silicified, and displays most delicately the structure and fibres of the living plant. The fossil bones are confined, as it seems, to the neighbourhood of the town of Wesmasut, at no great distance from the petroleum wells. They are imbedded in the sandy hills, and consist principally of the remains of mastodons, alligators, deer, and the rhinoceros.

The most important place on the Irawaddi, between the mouth of this river and the capital of the Birman empire, is Prome (about 18° 50′ N. lat.), called by the Mohammedans Pron, whence the European name derives its origin: the Birmans call it Pri (pronounced Pyi). It is a thriving town, and contained in 1827, shortly after the war, upwards of 10,000 inhabitants. This place, or rather one lying about six miles to the east of it, is reported to have been the most antient seat of the Birman government, at an epoch which begins some centuries before the Christian era. The ruins of the antient town consist of a broad, earthen wall, of a quadrangular form, from five to six feet in height. The area contains no relics of antiquity, and is overgrown with trees.

The promontory of Kyaok-ta-ran, which forms the southern extremity of the valley of the Irawaddi, is the eastern extremity of one of the offsets of the Aracan mountains. Nearly opposite to it rises another chain of hills of very moderate elevation, which, however, in its progress to the east increases in height, and forms a range which is visible at a distance of fifty miles and upwards. The higher portion of these mountains, called the Galladzet Mountains, extends in an eastern direction probably to the banks of the Setang river. Nothing is known of this range but its geographical position; nor are we better acquainted with the country extending to the north of this chain up to the capital of the empire, and occupying the central parts of the southern portion of Birma, between 18° and 22° N. lat., and the rivers Irawaddi and Saluen. It is supposed to be a country of secondary and tertiary formation, and to constitute a kind of uneven table-land of very moderate elevation. As far as our information goes, it has in general a very sterile soil, consisting mostly of sand or gravel, and is very thinly inhabited. Perhaps the valleys along the rivers form an exception. The hills, which cover the whole surface, and are commonly low, rise to a considerable height in a few places. A conical mountain, called Poupa, several miles to the east of Pughan, is thought to attain an elevation of above 5000 feet. Crawfurd thinks that the ranges visible from Ava to the south-east exceeds the mountains of Aracan in height; and Sangermano states that the Karians, who inhabit the neighbourhood of Tongo or Taunû, have been able to maintain their independence against the Birmans in their mountain-fastnesses; whence we may infer that this portion of the Birman territories contains extensive mountain-ranges.

The southern portion of the Birman empire is a low, level country, without any hills. It comprehends the Delta of the Irawaddi, and all the extensive tract which spreads from its eastern branch to the banks of the Setang river. Hamilton estimates the southern line of the Delta at 135, the western at 145, and the eastern at 113 miles. It contains more than 10,000 square miles, and is considerably larger than the Delta of the Nile. The country east of it may extend over a tract of nearly the same area; and thus this level country contains considerably more than 20,000 square miles.

The Irawaddi enters the low lands near 18° N. lat., where it throws off a great number of branches of various magnitudes, watering an immense extent of country, and affording a convenient internal navigation, to which there are few parallels in any country. Many of these branches reunite and divide again. The river falls into the sea by fourteen different channels. The three principal are Bassein, Dalla, and Rangoon, or Syrian. The Bassein river, also called Anank Khiaun, that is, western channel, forms an excellent harbour near the island of Negrais (called by the Birmans Haingri Kyun, and by Sangermano, Negraglia), and is navigable for vessels of considerable burden up to the town of Bassein; farther upwards it is only navigated by the river barges, and this navigation extends in the dry season (from November to May) only to Lamena or Lemena. Higher up it is a trifling stream, nearly dry, and all water connexion with the main river is interrupted; but after the rains it becomes again navigable for the river barges. This channel branches off from the main river south of Myan-aong

After having thrown off the Bassein river on the right, the Irawaddi continues to flow in a southern direction, but with numerous windings, and sends off many smaller branches. At nearly the same distance from the sea and the place where the Bassein channel branches off, is the second great branch of the Irawaddi, at the village Yangain-chain-yah, the river here dividing its waters between the Dallah and Rangoon channels. The Dallah channel forms near the sea numerous wide branches, but they are not navigable, on account of the bars before their embouchures. The Rangoon or Syrian channel, which is also called the Asiac Khiaun, that is, the eastern channel, flows off nearly in an eastern direction, and affords in all seasons an uninterrupted navigation into the main river, being from 80 to 150 yards across, and generally three or four fathoms deep, which, however, on some shoals lessens to two and a half fathoms. At the lowest water the depth on these shoals is said to be not more than five feet; and hence Crawfurd infers, that the whole rise of the water in the river amounts to ten feet. The advantages which this branch of the Irawaddi offers for navigation have concentrated on its shores, especially at the town of Rangoon, all the maritime commerce of the Birman empire. [See RANGOON.] In the dry season the tides ascend the branches of the river to the place where the two principal branches meet at the village of Yangain-chain-yah, but in the wet season they are observable in the Rangoon channel only as far as the village of Panlang, which is many miles farther down.

The distance from Rangoon to Ava along the river, according to Colonel Wood's map, is 446 miles; according to Symes, 500; and according to the Diana's log-book, 540. At the height of the freshes, a war-boat, proceeding day and night, has been known to go from Ava to Rangoon in four days. In the dry season, a war-boat, proceeding in the same manner, will go from Rangoon to Ava in eight days, and in the rainy season in ten.

The Delta of the Irawaddi, as far as the tide reaches, is covered with a thick forest of moderate-sized trees, sparingly interspersed with some grassy plains. As soon as the tides cease, the character of the vegetation is greatly altered. The country is covered with a tall rushy grass (a species of *saccharum*), among which are scattered trees from twenty to sixty feet high, without any underwood. The appearance of inhabitants and cultivation is extremely scanty. Here and there, on the immediate banks of the river, are a few villages of Talain fishermen; and farther off are the Karian villages, somewhat more numerous, and with a few patches of rice-culture. As the banks of the river are a foot or two above the level of the surrounding country, this circumstance might be taken advantage of for watering the land to a great extent. But irrigation is neglected, and the country is covered with innumerable pools, which are often so extensive that they might be called lakes. In the province of Bassein alone, 127 of these lagunes were counted at the time when it was occupied by the British. In the northern district of the Delta, especially north of Henzadah, the cultivated portion of the country is much more considerable, and here the water of the river is used for irrigating the rice-grounds.

The country which extends to the eastward of the Delta seems to be of the same description. It is drained by the Pegu river and the Setang. The Pegu river, which is called by the natives Bagoo Kioup, or 'Pegu Rivulet,' has its source in the Galladzet hills, and unites with the Rangoon branch of the Irawaddi three miles below the town of Rangoon. It is navigable only a few miles to the northward of the town of Pegu, which advantage it owes wholly to the action of the tide. In the fair season it is almost dry at low-water. The Setang has its sources near the 20th parallel, and runs southward the whole of its course, till it empties its waters into the northernmost angle of the Bight of Martaban. This river, where it is of great breadth, is rather a considerable arm of the sea than a river. Beyond the reach of the tides it is an inconsiderable stream; and even as low down as the town of Tongo it is only navigable for boats. Its mouth is confined by sand-banks, and is liable to a dangerous bore, which renders its navigation impracticable for large vessels, and difficult for vessels of all descriptions.

That portion of the Birman empire which extends along the western banks of the Saluen river is almost entirely unknown. It seems to be more mountainous than the country along the middle course of the Irawaddi, but to contain some fertile tracts.

Of Upper Lao, or that portion of Birma which extends on the left bank of the Saluen river, between the Chinese province of Yunnan and the kingdom of Siam, we have so little information, that we only know it to be a mountainous country, which however contains some fertile and cultivated tracts along the courses of the rivers. It seems to be rich in metallic wealth.

We conclude our description of the Birman Empire with a short notice of the Saluen river, which forms the eastern boundary-line between it and Siam, and the British province of Martaban, for between 500 and 600 miles. The Saluen, or Thaluen, called also Sanluen, rises in the eastern districts of Tibet, in the country of the Nou or Noui, and its upper course is called by the Chinese Nou-kiang. It afterwards passes through the Chinese province of Yunnan, where it is named the Lou-kiang. Continuing its southern course, it leaves China, and divides the province of Upper Lao from the remainder of the Birman territories, and afterwards forms the boundary between Siam and Martaban on one side, and the Birman empire on the other. This river is remarkable for the small number of large bends, and for not forming a delta, as is the case with all larger rivers in this part of the world. It is likewise less navigable: vessels of moderate size can only come up to the town of Martaban, and with difficulty and danger. Small boats may ascend as far as Ka Kayet, at the confluence of the Yunzaluen river; but farther to the north the navigation in the wet season is entirely interrupted by numerous eddies, rapids, and cataracts. About twelve miles north of the town of Martaban, a creek, called the Kadachaong, leads from the Saluen to the Setang, and another channel hence to the Pegu river; so that there is an inland water communication between the Saluen and the Bassein branch of the Irawaddi, a direct distance of more than 200 miles. Near its mouth the Saluen is divided into two branches by the island of Balû, which is about twenty miles in length, and about half that extent in average breadth: it is noted for its great fertility in rice. The southern branch of the Saluen, between the island of Balû and the new settlement of Amherst, is seven miles across, and the wider of the two.

The climate of such an extensive country, which extends over twelve degrees of latitude, must, of course, vary very greatly. We are, however, acquainted only with a small portion of it. The greatest difference observed is that which prevails between the low country at the southern extremity and the valley of the Irawaddi before it branches off into different channels. In the low lands the south-west and north-east monsoons divide the year between them, and hence there are only two seasons, the wet and the dry. From the end of April or the beginning of May, to the end of July, or during the south-west monsoon, violent rains pour down nearly without intermission; and at the beginning, as well as at the end of this period, the rains are accompanied with tremendous thunder and lightning, and with violent winds. These rains are followed by an unsettled state of weather, which continues to the end of October or the beginning of November. But from this time to April the season is perfectly dry, except the month of February, in which a little rain sometimes falls; but it is very gentle, and never continues for several days. In the mornings however thick fogs are frequent in October and November.

In the valley of the Irawaddi and the adjacent hilly countries three seasons are observed, the cold, the hot, and the rainy. The cold season, which may be called the winter, though it never freezes nor snows, prevails during the two months which precede the winter solstice and the two which follow it. The air is dry, the nights and mornings chilly, and the heat of the day very moderate; but mists are frequent in November and December. This is the most pleasant part of the year, and the season of the harvest of rice, grain, and pulse. The transition from cold to heat is very sudden. In March and April it is often very hot, and the heat continues to the month of July. In May many trees shed their leaves, but they are instantly clothed with new ones. During the season of the heat the climate of the low lands is less warm than the valley, because the rain diminishes the heat. In the valley a little rain falls in May or the beginning of June, and this rain is called the first rain; but sometimes the rains do not come on, and even when they are abundant, they do not continue long enough to change the temperature very much. During the hot season the clouds are carried by the south-west monsoon between the two ranges of mountains which enclose the valley of the river to the hilly country adjacent to it on the north, where the moisture contained in them descends on the mountains which divide the Birman Empire from Asam, and pours down to the valley of the Irawaddi in torrents and streams, which cause the river to rise and to inundate the lower tracts on its banks during the months of June, July, and August. In some places the difference of the lowest and highest water-mark is not less than thirty-two feet. After the first rains in May, two months and a half follow in which not a drop of rain falls in the valley of the Irawaddi. The second or great rains begin in the middle of August, and last to the end of October. They are generally heavy, but it sometimes happens that these second rains do not come at all, or are not sufficiently plentiful, and in such an event scarcity is the natural consequence. Such a disaster never occurs in the low lands. During the second rains the river rises and falls several times; but in general the waters are not entirely drained off before the end of October, in which month the fair weather becomes settled, and the agricultural labours begin, as well on those fields which have only the advantage of the rains as on those annually inundated by the river, which, by its deposits, renders the soil more fertile.

The thermometer ranges in the low lands between 55° and 90°, rarely passing these two extreme points, but more frequently the latter than the former. In the valley of the Irawaddi it descends lower in the cold season and rises higher in the hot, occasionally to 94° and upwards.

We are unacquainted with the climate of the northern mountainous districts, except that of the country of the Bor Khamti, at the most northern extremity of Birma, which was visited in 1827 by Lieutenant Wilcox, who states that after rain the thermometer fell five or six degrees, when the air was delightfully clear, and the sky partially covered with clouds. Within three or four days the atmosphere thickened, and the thermometer regained its highest range, when it became excessively close, till another storm reduced the heat. In the morning at sunrise the range was from 72° to 78° in the shade, and at the hottest time of the day from 84° to 94°. The nights were comparatively cool and pleasant. The observations were made in the month of May. From the 15th of October to February, the weather is clear and dry; the remainder is perfectly uncertain. The heavy rains set in about the 15th of June, and continue to the 15th of September.

Gold is obtained in Birma by washing in some rivulets, and is said to exist more abundantly in Lao. But the produce is not equal to the consumption, which is considerable, especially for gilding; and a considerable quantity is imported from China. Mines of silver, copper, and tin exist in a district situated on the confines of China, not far from Bhammò, and called by Hamilton, Boduaen: by Crawfurd, Bor-twang. They are worked by the Chinese. Lead and antimony are said to exist abundantly in the mountainous country of Upper Lao, where they are worked, and the produce of the mines is brought to Ava. But in general the metallic riches of the country are much neglected. Iron, however, is got in several places, but though the ore is good, the produce is indifferent, owing to the ignorance of the natives.

Of precious stones, those of the sapphire family and the spinelle ruby are chiefly found. They are found at two places not far from each other, called Mogaut and Kyatpëan, about five days' journey from the capital, in an east-south-east direction. The stones are obtained by digging and washing the gravel in the beds of rivulets or small brooks. The varieties said to exist are the oriental sapphire, the oriental ruby, the opalescent ruby, the star ruby; the green, the yellow, and the white sapphire; and the oriental amethyst. Noble serpentine or green-stone, is found in most of the upper branches of the Irawaddi, and exported in considerable quantities by the Chinese to their own country, where it is used for rings and amulets. The Uru, a branch of the Kyan-Duayn, produces a stone the nature of which is not known, but for which the Chinese pay a large price. [Wilcox.]

Mines of amber are found on the branches of the Kyan-Duayn, and in the vicinity of the Bhammò. They seem to be abundant, from the circumstance of the unwrought material being very cheap at Ava. Coal seems to be plentiful, but it is not used. Limestone exists in great abundance in the mountains near the capital; and at a place called Sakyin, about forty miles above Ava, on the eastern bank of the Irawaddi, statuary marble is worked, which Mr. Chantry considers equal to that of Carrara.

Nitre, natron, and culinary salt are found in many of the arid and calcareous tracts in the upper provinces, and chiefly in the neighbourhood of the capital. Natron, in an impure state, is used by the natives instead of soap, a preparation with which they seem to be unacquainted.* Salt is extracted from some lakes in the upper provinces, especially near Monchabo, and from the sea-water in the lower provinces.

Among the vegetable productions of the Birman forests the teak holds the first place. It is not found in the low alluvial lands to which the tides reach; but in the high lands beyond their influence, it seems to be very generally dispersed throughout the country. The forest of Sarawadi, situated on the boundary-line between the low and high lands, furnishes nearly the whole of what is exported to Bengal, Madras, and other countries. The teak of Ava is considered less durable than that of the coast of Malabar when employed in naval architecture; but it has been determined by careful experiments, that it is stronger, and therefore fitter for gun-carriages and machinery. The second timber-tree is the *Hopaea odorata* of large size, and very abundant in the lower provinces, where it is used in boat-building, and the common canoes are often made of an entire tree of it, hollowed out. Another valuable timber-tree is the *Heretiera robusta*, called in India soondry, which grows in great quantities and of a large size on the sea-coast, and everywhere within the influence of the tides. In the upper country have been found seven new species of oak, many of them fine forest-trees, of which the timber promises to be useful. No trees of the pine family have been discovered. The bamboo grows everywhere in the forests, and in the lower parts of the country it grows to an astonishing height and thickness; some will measure one foot and a half in diameter, and are large enough to form the principal pillars of a house. The *Mimosa catechu*, which affords the *terra japonica*, or catechu, rises to the height of thirty and forty feet, and is found generally in the upper and lower countries. The drug is obtained by boiling the wood cut down into chips, and inspissating the produce. This article is much used in the country and largely exported, particularly to Bengal. The Birman forests yield also the varnish which is generally used in the fabrication of the lacker ware: the best comes from the country of the Shans, and especially from Upper Lao. From the forests of the same country is obtained a large quantity of stick lac, of excellent quality.

The following are the objects of agriculture in Birma: rice, maize, millet, wheat, various pulses, palms, sugar-cane, tobacco, cotton, and indigo. In the valley of the Irawaddi two crops of rice are generally obtained, and occasionally three; the best during the periodical rains, and the others through means of artificial irrigation. The return is seldom above fifteen or twenty-fold for the seed. In the Delta and the adjacent alluvial countries, only one crop is got, immediately after the rains, which frequently yields fifty and sixty-fold. Maize and millet are cultivated in the higher lands as winter-crops: but neither produces in such abundance as in other countries: maize, at the utmost one hundred-fold for the seed. Wheat is only grown in the neighbourhood of the capital, but though it yields from forty to sixty-four-fold, and in the worst soil from ten to twenty-four-fold, its cultivation is not much extended, because the Birmans prefer rice. The pulses most commonly cultivated are the *Phaseolus max*, the *Dolichos Bengalensis*, the *Cicer arietinum*, and the *Arachis*, or earth-nut. The *Sesamum Indicum* is very generally grown throughout the upper provinces, its oil being used in cookery as a substitute for butter; and for the lamps, where petroleum is high-priced.

Tea is cultivated in a district, about ten days' journey north-east of Ava, but it is not used as in China and with us. The Birmans eat the leaves pickled, with oil and garlick; they consume an immense quantity of this article.

Cocoa and areca palms are not frequent: but the palmyra, or *Borassus flabelliformis*, forms immense groves in the valley of the Irawaddi. Its wine, when inspissated, gives a cheap but impure sugar, which is universally consumed, partly like that of the cane, and partly for the preparation of a strong liquor. The sugar-cane forms also an object of agriculture, but to a small extent: the only use made of it is to eat it in its crude state.

Excellent tobacco is grown in the higher lands. Cotton is cultivated in every part, but more especially in the higher lands. There are two species of cotton, one red, which is not frequent, and is the most esteemed. The white species is the *Gossypium herbaceum*; its produce has a fine and silky texture, but a short staple. At the market of Dacca, to which large quantities are brought, it fetches a higher price than the ordinary varieties of Indian cotton. Indigo is like wise generally cultivated, but both the culture and manufacture are rude, and the produce is unfit for exportation.

In the upper provinces a species of Crotalaria is cultivated for cordage; in the southern provinces the rattan is the principal substitute for hemp.

Little attention is paid to gardening and horticulture. The young shoots of bamboo, wild asparagus, the succulent stems of a variety of aquatic plants and uncultivated arums, are gathered and brought to market. Few vegetables are cultivated. Our common potatoes, peas, carrots, cabbages, turnips, mustard, cresses, radishes, &c., are not known. Others are little attended to, as melons, cucumbers, the egg-plant, pumpkins, yams, sweet potatoes. Onions are frequent in the mountainous tracts towards the north, and especially in Lao, whence they are imported into the other provinces. Capsicum and the betel pepper are carefully cultivated.

Fruit-trees are numerous, but also much neglected. The most common are the mango, the orange, the pine-apple, the custard-apple (*Psidium pomiferum*), the jaccax or jack-fruit, the papaya-fig (*Carica papaja*), and the plantain. A species of mango, called the Marian, bears a small fruit, about the size and shape of a greengage, and is much cultivated and prized by the natives, although little palatable to a European. It is found only in the lower provinces, where also the pine-apple grows in great perfection, though it is inferior to that of the countries lying nearer the equator. The durian (*Durio*) and mangostin (*Garcinia mangostana*), do not grow in Birma. Sangermano enumerates among the vegetable productions of Birma, pepper, cassia, and a species of nutmeg of an oval shape, and larger but less aromatic than those of the Moluccas.

The domestic animals are the ox, the buffalo, the horse, the hog, the dog, and the cat; goats and sheep are only kept as rarities, and a few asses are brought from China. The camel is not known. Both oxen and buffaloes are of a large size, and extensively used for domestic purposes; the buffalo is confined to agricultural labour, and the ox to burden and draught. The oxen are generally of a reddish-brown colour, rarely black, and seldom or never of the light or white grey which is so general in Northern India. Before carriages they run at a quick pace. The horses are small, rarely exceeding thirteen hands high, and are never used as beasts of burden, nor for draught, their only use being for the saddle. Hogs are only useful as scavengers, and are not taken care of, except at Rangoon, where they are raised for the consumption of foreigners. Dogs are extremely frequent, and rove about without belonging to any body. The cats, like those of the Malays, have only a short tail, and are excellent mousers.

The wild quadrupeds are the elephant, rhinoceros, hog, deer, oxen, and buffaloes, the bear, otter, tiger, leopard, with wild and civet cats. The elephant is very numerous in the lower provinces, where it often enters the rice-fields and causes great damage. It is not used as a beast of burden, and only the royal family are permitted to mount it. Accordingly, only few are tamed; the king has a small number of white elephants. The rhinoceros with a single horn is numerous in the lower provinces, but probably less so than the elephant. Both are hunted by the Karians. Stags and deer are found in immense herds; and one species is nearly as large as an ox. Oxen and buffaloes are found in a wild state in the forests. The royal tiger, the spotted leopard, and several species of cats are numerous. 'It is remarkable, that none of the canine tribe, so frequent in the neighbouring country of Hindostan, are, as far as is known, to be found within the Birman dominions. There are neither wolves, jackals, foxes, nor hyenas; and this zoological feature is said to extend to all the countries of tropical Asia lying east of Bengal.' [Crawfurd.] Hares of a small size occur in the upper provinces. Monkeys, differing in size, shape, and colour, are numerous; especially along the water-courses of the Irawaddi in the Delta. The orang-outang is found in the great forests which lie between the city of Pegù or Bagò, and Tongo or Tanaù.

Of poultry a few common fowls and ducks only are reared. Peacocks are very numerous in the woods of the lower provinces, and of fine flavour. The jungle fowl is generally spread over the country, and two species of pheasants are numerous in the lower provinces. Pigeons abound everywhere, especially the wild pigeons of a green colour. There are also partridges, quails, geese, ducks, and snipes. Parrots are numerous, and cause great damage to the fruit-trees. Esculent swallows' nests are gathered on some small rocky islands in the neighbourhood of Cape Negrais, and exported to China. Many of the land-birds are distinguished by the brilliancy of their colour. The feathers of the blue jay are used in China to ornament the dresses of ceremony of the Mandarines. [Crawfurd.]

Fish are plentiful in the Irawaddi, especially in the channels of the Delta, where immense quantities of pressed fish or *Ngapi* are prepared. These pressed fish constitute a main article of the diet of the Birmans. In some cases the fish is mashed and pounded, and this description generally consists of prawns. In the coarser sorts the pieces of fish are entire, half putrid, half pickled. They are all fetid and offensive to Europeans.

Lizards are numerous, and some species are used as food: one of them especially, called padat, is not inferior to a fowl. Alligators are met with in the channels of the Delta, where the water is brackish, and in many places where it is perfectly salt. Land and water-tortoises are found in several places, but especially in great abundance on the Bassein branch of the Irawaddi. Near the large island of Negrais is another island, called the Island of Turtles, where these animals are taken in immense numbers, and carried to Pegu and Bengal. They are of great size, and sometimes weigh 500 pounds. Farther up is a sand-bank, on which the tortoises deposit their eggs in such numbers as to be sufficient for the supply of a great portion of the empire. These eggs are sent by boats to Bassein and Rangoon, and hence distributed over the country.

Throughout the whole country, but more especially in the upper provinces, nearly every species of serpent is used for food, after the head has been cut off. Leeches are a great nuisance; some are as large as small eels, and inflict fearful wounds on the buffaloes, which are fond of bathing in the rivers. A species of red ant is eaten, fried, or with the ngapi; and a worm, which in the lower provinces is found in the heart of a shrub, is considered such a delicacy, that every month a great quantity is sent to the capital to be served up on the table of the emperor; it is eaten either fried or roasted. [Sangermano.]

Bees are wild in the woods, and in such abundance that wax forms a staple article of commerce.

The nations that inhabit the eastern and south-eastern countries of Asia seem to belong to one race, if we may judge from their physical constitution. They are distinguished by a short, squat, robust, fleshy figure, and by features very different from those of Europeans. The face is somewhat in the shape of a lozenge, the forehead and chin being sharpened, while at the cheek bones it is very broad. The eyebrows project very little, and the eyes are very narrow, and placed rather obliquely in the head, the external angles being the highest. The nose is very small, but has not, like that of the negro, the appearance of being flattened. The apertures in the nostrils, which in the European are straight and parallel, in them are nearly circular and divergent; for the *septum narium*, being much thicker towards the face, places them entirely out of the parallel line. Their hair is black, coarse, lank, and abundant. Even in the warmest climate the people have not the deep hue of the negro or Hindoo.

If we may judge from the languages which are spoken in the Birman territories, the inhabitants are divided at least into five nations, some of which comprehend many tribes. Crawfurd states that eighteen different tribes or nations had been enumerated to him. Wilcox, in his attempt to reach the sources of the Irawaddi, found in the most northern corner of the kingdom seven dialects spoken in villages only one day's journey from one another, and differing so much that the inhabitants of one could not be understood by those of another village. He also found that the languages of the Bor Khamti, of the Singfos, and of the Kunungs, were entirely distinct from one another.

The Birmans, who call themselves Mrammas (pronounced Myanmas) or Brahmas (pronounced Byahmas), occupy the centre of the empire, between 18° and 22° or 23° N. lat., and extend from the Aracan mountains to the Saluen river. The languages spoken by the Yo or Io, and those of the Kyain and Karens, are only dialects of the Birman language. The Yo inhabit the hilly country extending west of the Danghii hills, to the mountains of the Kookis; we know very little of them. The Kyains, who call themselves Koloun, are the inhabitants of the Aracan mountains, but many of them have settled in the valleys on the west of the Irawaddi; they are a peaceful industrious tribe, who cultivate the ground and weave cloth of cotton and silk. The men and women tattoo their faces all over, in lines mostly describing segments of circles. The Karens or Karians live partly intermixed with the Peguans in the Delta of the Irawaddi, where they call themselves Play, and are the most industrious cultivators of the soil. They occupy also the hilly and mountainous country on the upper branches of the Setaing, near Tongo, where, according to the statement of Sangermano, they have preserved their independence. Other Karens are found on the banks of the Saluen north of Martaban, as far as the mouth of the Junzalaen.

The Peguans, who at no distant time formed an independent and powerful nation, seem at present not to be very numerous. They are called Talains by the Birmans, and by themselves Moan: they occupy nearly exclusively the low country between the Delta of the Irawaddi and the Saluen river. In the Delta itself they are mingled with the Karens, but form the greater part of the population.

The Shans are the most numerous nation of the peninsula beyond the Ganges; they call themselves Tay. This nation is dispersed over nearly one half of the Birman empire, and all the tribes inhabiting the kingdom of Siam and Lao belong to it. In Birma four tribes of Shan are distinguished: the Lowa Shan occupy Upper Lao, the Tay-yay, called by the Birmans Mrelap-shan (pronounced Myelapshan), live on the western banks of the Saluen, and extend north of Amarapoora to the banks of the Irawaddi, and even on the country to the west of that river. Their country is called Ko-Shan-pri (pronounced Ko-sangpyi), or the nine provinces of Shan. The country to the north of them is inhabited by the Tay-Loong, called by the Birmans Casi-Shan; the Bor Khamti, visited by Wilcox, are only a smaller tribe of these Casi-Shan. Another numerous tribe of the Shan extends on both sides of the Kyan-Duayn up to the boundary of Munipoore, and the inhabitants of the last named country are likewise Shans. The Shans inhabiting the country along the Kyan-Duayn are called by the Birmans Kathu or Casi.

In the northern parts of the empire the tribes of the Shan appear to occupy only the plains and larger valleys. The mountains and the upper valleys are in possession of two numerous races of mountaineers, the Singfos and the Naga. The Singfos inhabit the mountains which skirt the Irawaddi on both sides and extend northward to the vale of the Brahmapootra in Asam. The Naga tribes are dispersed over the extensive mountain-districts between the upper branches of the Kyan-Duayn, and as far as the boundary of Asam. They seem to belong to the same nation which, under the name of Kookis, occupies the country between Munipoore and Chittagong. The Singfos and the Naga live in a state of independence.

The Birmans are greatly inferior to the Hindoos in civilization, and still more so to the Chinese. Like the Talains or Peguans, they tattoo or stain the skin with an indelible tint, but this practice is confined to the men. Not to be tattooed is considered a sign of effeminacy, and there is no one who is not tattooed more or less. They bore the lobe of the ear, making a very large and unseemly aperture, into which a gold or silver ornament is put, or a piece of wood, or roll of paper. If the aperture is not occupied, a man or woman, after smoking half a cigar, thrusts the remainder into the ear for future use. They consume large quantities of tobacco in the form of cigars; and also much betel, which they mix with the areca nut, lime, and a little tobacco.

Their dress, though upon the whole not unbecoming, is much less so than the flowing and graceful garments of the western nations of India. Too much of the body is left naked, and the fabrics worn are comparatively coarse and homely. Umbrellas, which are in general use among all classes, are among the principal insignia of rank or office. The colour of the dress of the priests is yellow, and it would be deemed nothing less than sacrilege in any one else to use this colour.

The Birmans are very uncleanly in their food. They eat all kinds of reptiles, lizards, iguanas, and snakes; and, as their religion forbids them killing animals for food, they generally eat those which have died of disease. Venison is the only meat permitted to be sold in the markets. The killing of a cow is punished with peculiar severity.

The Birmans are of a gay character, and fond o[illegible]ments, which are principally chess, music, the exhibition of fire-works, and some kinds of dramatic representations.

Their progress in the useful arts has not been great. All their cotton fabrics are coarse and high priced, and British piece-goods are imported in considerable quantity. Silk articles are coarse and high-priced, but durable. All the colours given to these fabrics are fugitive, especially those of the cottons. Coarse and unglazed earthenware is of very good quality, and cheap. Those known in India under the name of Pegu jars often contain 180 gallons; but the Birmans are unacquainted with the art of making any kind of porcelain. Their iron manufactures, which are always coarse and rude, consist of swords, spears, knives, scissors, and carpenters' tools. Muskets, or rather matchlocks, are made at Ava, and the best tempered swords are imported from the country of the Shans. Brass ware is not much used, lacquered ware being chiefly substituted for it. The manufacture of this ware is very much extended, and in this the Birmans display invention and taste, but the best description is imported from Lao. Gold and silver ornaments are manufactured at the capital: some are good, but in general the jewellery is clumsy and rude, and inferior to that of India.

In Birma, as among other nations which have embraced the religion of Buddha, education is in some degree attended to. It is a kind of religious duty in the priests to instruct youth. The monasteries are the only schools, and the priests generally the only teachers. Education is entirely eleemosynary: the children even live at the kyaongs, and the parents only make occasional presents to the priests. The children are instructed for about six hours in the day in reading, writing, and the four common rules of arithmetic. There are few persons who do not know how to read, and not many who do not write. The girls are instructed by the nuns, or female priestesses, in reading, and some also in writing, but that is less general.

Like the other Hindu-Chinese nations the Birmans have two languages and two alphabets, the vernacular and the foreign, or Pali. In the Birman language all the words not derived from the Pali are monosyllables, and even the polysyllabic words derived from this source are pronounced as if each syllable were a distinct word. There is no inflexion of any part of speech. Relation, number, mode, and time are all expressed by prefixing or affixing certain particles. Some roots of this language may be converted into nouns, verbs, or adjectives by a similar simple contrivance. The Pali alphabet is very little used, even in their religious writings, for which they have recourse to the vernacular alphabet.

The literature of the Birmans consists of songs, religious romances, and chronological histories, of which the second class occupies the principal rank. The Buddhist religion, as it exists among the Birmans, does not appear to differ materially from that practised in Ceylon, Siam, and Kamboja. Among the Birmans neither the Christian nor the Mohammedan religion has made any progress.

In Birma there is no census of the population, and accordingly there are no exact data for ascertaining the amount. There is consequently a great difference in estimating the number of inhabitants. Symes carried it to upwards of fourteen millions, which Cox reduced to from six to seven millions; and Crawfurd, who has been at great pains in collecting information on this subject, does not rate the population of the Birman empire higher than four millions, or about twenty-two inhabitants to a square mile.

The sovereign of Birma, who is called Boa, is lord of the life and property of all his subjects. The country and people are at his entire disposal, and the chief object of government is his personal honour and aggrandizement. No class of inhabitants possesses hereditary rights except the Taubwas, or Saubwas, who are the tributary princes of some of the subdued nations. Among the Birmans themselves there is no hereditary nobility. The first officers are appointed and dismissed at a nod, and neither their titles, rank, nor offices, and very often not even their property, can descend to their children. Any subject can aspire to the first office in the state, and such offices in reality are often held by persons of very mean origin.

In Birma there is no vizier or prime minister; but the king has two councils, a public and a privy one, through which the royal orders are issued. The first is called the lut'-d'hau, from the name of the hall in which the business is transacted, and consists commonly of four officers, called wun-gyis, who have the right of deliberating and of voting, and four of less rank, called wun-dauks, who do not deliberate or vote; there are also eight secretaries, called saré-d'hau-gyis. The privy council consists likewise of four officers, called atwen-wuns, and thirty secretaries. Whatever emanates directly from the king is first discussed in the privy council and then transmitted to the lut'-d'hau.

For internal administration the country is divided into provinces, these into townships, the townships into districts, and the districts into villages and hamlets, and every one of these divisions has its political head. The governor of a province is called myo-wun, his first officer re-wun, who is his deputy, and then follow the ak'hwon-wun, or collector of taxes, and the akaok-wun, or collector of customs.

The Birmans have no standing army, nor is there any distinction between the civil and military classes, or between civil and military employments. As the sovereign is considered the lord of all his subjects, every male adult is obliged to become a soldier. In case of a war, all persons able to bear arms are brought together through the agency of the local officers, by an order of the lut'-d'hau; and they serve under the same leaders as when dwelling in their own districts or townships. The troops have no regular pay, but are armed and fed at the public expense. An army thus composed cannot be long kept together, and a defeat or difficulty is almost sure to disperse them. This accounts for the sudden disappearance of the numerous armies which the Birmans opposed to the British at the beginning of the last war. The Birmans, however, would be good soldiers if they were well disciplined and armed; but at present they are unable to withstand a European force. In their last contest with the English they displayed a good deal of skill in the construction of field-works, but they seldom knew how to defend them.

In Birma there is no land-tax; but the sovereign, being considered as the lord of all the inhabitants, assigns the labour of the peasants or cultivators to his favourites and public officers instead of stipends and salaries, or appropriates them to the expenses of public establishments, such as the war-boats, the elephants, &c. Those to whom the townships or villages are assigned in this way assess the cultivators at their discretion, usually by levying a kind of capitation-tax, which, according to circumstances, is taken either in money, in kind, or in services. This manner of taxing the country is exceedingly oppressive, and whenever such high persons are in favour at court, the cultivators have no resource against oppression but to abandon the lands, and to take refuge in some other place. Hence the decay of established towns and villages and the rise of new ones is a thing of yearly occurrence.

The lords of the land make yearly offerings to the king, and it is supposed that these offerings amount to one-tenth of the income derived from the grant. These offerings constitute one of the principal sources of the king's revenue. The remainder arises from a tax on the petroleum, the ngapi, salt, and teak-timber, besides the customs on the merchandise exported and imported, the former paying five per cent., and the latter ten per cent. Crawfurd thinks that the whole revenue of the king does not exceed 25,000*l*. per annum. But his expenses are still less, as no public officer receives any fixed money salary. The principal officers are paid, as already stated, by assignments of land, or, more correctly, by an assignment of the labour and industry of a given portion of the inhabitants; and the inferior ones by fees, perquisites, and irregular emoluments. Money therefore is seldom paid out of the royal treasury, unless for the personal gratification of the sovereign. In extraordinary cases, as for instance if a war be undertaken, an extraordinary contribution is levied on the people.

The circulating medium consists, for small payments, of lead; in the case of larger ones, of gold and silver, and chiefly of the latter; but there is no coin of any of these metals. The money must be weighed and generally assayed at every payment. Silver may be considered as the standard, and gold is about seventeen times as dear. Lead fluctuates according to its market value. The weighing and assaying of the metals, which is done by a class of brokers called poë-za, causes an expense or loss of two and a half per cent. at every disbursement.

The commerce carried on in the interior of the country is considerable, the different portions of the empire producing several things which are not found in others. The inhabitants of the sea-coast and the lower country take to the capital and the upper provinces rice, salt, ngapi, dried fish, and foreign commodities. The Shans bring to Ava cotton and silk stuffs, some raw silk, varnish, stick-lac, ivory, bees-wax, lacquer ware, swords, gold, lead, and tin; and take in return the articles brought from the lower provinces, especially salt, ngapi, and dried fish. Ava sends to the lower provinces petroleum, saltpetre, lime, paper, lacquer ware, cotton and silk fabrics, iron, cutlery, some brass-ware, catechu, palm-sugar, &c.

The internal commerce is much facilitated by the easy water-communication, especially in the lower country, where the numerous branches and channels of the Irawaddi, together with the Pegu river and the Setaing, render the transport of commodities so easy that roads are nearly unknown. The hilly country north of it possesses these advantages only so far as it approaches the Irawaddi or Kyan-Duayn. In this part roads are numerous, and the merchants travel for security in caravans, as in other parts of Asia. The trading vessels used on the Irawaddi for the transport of commodities are commonly small, not exceeding ten or fifteen tons burden; but larger vessels are also used, some of which may be 100 tons.

The foreign commerce of the Birmans is limited to that with China, carried on over land, and to that with the nations who visit the ports of the country. The traffic with China is considerable, and entirely carried on by the Chinese, who come in great numbers to the annual fairs of Bhanmò and Midé. Bhanmò is situated on the banks of the Irawaddi, and seems to be a considerable place. Midé is a small town about six miles to the north-east of Ava. This traffic resembles that between China and Russia at Kiachta and Maimatchin. The caravan arrives at Ava in the beginning of December, and is stated to be six weeks in travelling from Yunnan. The commodities are brought on small horses, mules, and asses. The principal fair is at Bhanmò, and few traders only come to Ava. The articles imported from China are copper, orpiment or yellow arsenic, quicksilver, vermilion, iron pans, brass-wire, tin, lead, alum, silver, gold and gold-leaf, earthenware, paints, carpets, rhubarb, tea, honey, raw silk, velvets and raw silks, spirits, musk, verdigris, dry fruits, paper, fans, umbrellas, shoes, wearing apparel, and a few live animals. The largest article of import is raw silk, which is worked up in the manufactures of the country. The exports from Birma consist of raw cotton, ornamental feathers, esculent swallows' nests, ivory, rhinoceros and deer horns, sapphires, and noble serpentine, with a small quantity of British woollens. Raw cotton is by far the most considerable article. The average amount is stated to be not less than 14,000,000 lbs. The whole amount of the export and import trade with China is estimated at from 400,000*l*. to 700,000*l*.

The navigation of the Birmans does not generally extend beyond the Gulf of Bengal. The places visited by their vessels are Chittagong, Dacca, and Calcutta in Bengal; Madras and Masulipatnam on the coast of Coromandel; and the Nicobar Islands, and a few places in Sumatra. Many foreign vessels, especially British, American, and Chinese, visit the harbour of Rangoon. The articles exported seaward are teak-wood, terra Japonica or catechu, stick-lac, bees-wax, ivory, raw cotton, orpiment, gold, silver, rubies, and sapphires, with horses. The most important article is teak timber, which is principally carried to Calcutta. Raw cotton goes to Dacca, and is used in the fabrication of the fine muslins.

The principal articles imported at Rangoon are cotton piece-goods, British, Bengal, and Madras; British woollens; iron, steel, quicksilver, copper, cordage, borax, sulphur, gunpowder, saltpetre, fire-arms, coarse porcelain, English glassware, opium, tobacco, cocoa and areca nuts, sugar and spirits. After cotton piece-goods the most important articles are areca and cocoa-nuts. The value of the cotton piece-goods was estimated in 1822 at 282,000*l*. Crawfurd thinks that the value of all the imports of Rangoon is not over-rated at 300,000*l*. a year, and that the exports may be taken at the same amount. [See RANGOON.] Bassein formerly was a place of considerable traffic, and some European nations had factories established there, but since the foundation of Rangoon it has lost all its commercial importance.

(Symes's and Crawfurd's *Embassies to Ava;* Cox's

Notes; Sangermano, *Description of the Burmese Empire* (this work exists only in an English translation, which was published in 1834 by the Translation Society of London); Wilson's *History of the Burmese War*; Hamilton, in *Asiatic Researches* and *Edinb. Philos. Journal*; Wilcox, in *Asiatic Researches*; *Maps of* Berghaus *of Hinterindien and Asam*; of Wilcox in *Asiatic Researches*, xviii.)

BIRMINGHAM, a large commercial and manufacturing town in the county of Warwick, and hundred of Hemlingford; it occupies a narrow peninsular projection of the north-western portion of the county, which is bounded on the north and south by the neighbouring counties of Stafford and Worcester. It is in 52° 59′ N. lat., 1° 18′ W. long., 102 miles in a straight line N.W. of London, and by the nearest road 109 miles. It is 79 miles S.E. of Liverpool, and the same distance N.N.E. from Bristol, both in a straight line. Birmingham is written Brymyncham in the letters-patent of Edward VI. by which the free-school was founded.

The parish of Birmingham, though extending on the north and west to a considerable distance from the town, is smaller than the agricultural parishes in the neighbourhood. It is bounded on the east and north-east by the parish of Aston, in Warwickshire; on the south by that of Edgbaston in the same county; on the west and north-west respectively, by those of Harborne and Handsworth, both in the county of Stafford. The parish is in form an irregular quadrangle, elongated east and west. It is about eight miles in circuit, and contains, according to late surveys, 2810 acres. The antient church, dedicated to St. Martin, is not far from the south-eastern boundary of the parish. The town at present covers the whole eastern half of the parish, and extends its lines of building to a considerable distance into the parish of Aston. Many of the inhabitants also find, in the contiguous portion of the parish of Edgbaston, pleasant residences, at an easy distance from the crowded and commercial part of the town.

Birmingham is situated near the centre of England, and in its vicinity we find the water-shed which separates the streams that belong to the basin of the Trent from those which belong to the basin of the Severn. The river Rea, a remote branch of the Trent, is about 310 feet above high water in the Thames at London—taken at a point close to Birmingham. The surface of the ground is varied, the streets generally lying on a declivity, which facilitates the cleansing of the town, and contributes to its general health. The prevalent geological character of the neighbouring country is the new red sandstone, with beds of clay and gravel superimposed. It has been asserted that coal exists in the immediate neighbourhood, but this is questionable. The middle of the parish of West Bromwich seems the boundary of the accessible beds of coal, beyond which, in this direction, the strata are greatly disturbed; and the coal, if it exist here, appears from late trials to lie at an immense depth.

The soil in the vicinity of the town is of indifferent quality, but the ample supply of manure, and the value of every open space of ground, induce such a system of culture as renders it highly productive. Large plots of ground in the immediate environs have been long divided by their proprietors into small gardens, which are let at the rent of one and two guineas per annum. Many of these are occupied by artizans, and have been productive of great benefit, both in respect of the vegetables they have yielded, and the healthful exercise derived from their cultivation. This appropriation of the land is however fast diminishing, owing to the rapid increase of the town.

Birmingham has from a remote time been a market-town, and to a certain extent the seat of manufactures. Being situated at a moderate distance from the Staffordshire mines of iron, which were unquestionably worked at a very early date, and placed in a district which was distinguished as woody (the northern or Arden division of Warwickshire), it offered great facilities for smelting the ore of iron, which, before the introduction of the steam-engine, could only be effected by means of charcoal. That this was the fact, was noted by William Hutton, the first historian of the town, in his description of a very antient furnace which was still worked when he wrote, in 1780, and near to which rose what he calls 'a mountain of cinder,' the refuse of the operations of smelting, which, according to the then existing scale of increase, must have taken at least a thousand years to accumulate. The iron being prepared on the spot, it is natural to suppose that a colony of artificers would settle here, and that they would early acquire skill in the use of the material. During the Heptarchy, the manor appears to have been a possession which gave dignity and consideration to its holders, who resided at a castle or mansion near the cluster of buildings which formed the nucleus of the present town. But it does not appear that in 'antient times' Birmingham attained to any degree of splendour. The only religious establishment of any considerable antiquity within the precincts, the priory of St. Thomas, if founded before the reign of Edward I., must originally have been of small size, as nearly all the lands which are known to have belonged to it were granted in that reign by the neighbouring proprietors.

Though the seat of industry and the simpler mechanical arts, the progress of Birmingham was for many centuries slow, and its productions, from the difficulty of transit, circulated within a limited district. In the sixteenth century Leland speaks of the place as 'a good market-town,' of which 'the beauty' was one principal street, of a quarter of a mile long. It was inhabited by 'smiths, that use to make knives and all manner of cutting-tools; and many lorimers that make bitts, and a great many nailors.' A place thus characterized by the industry and ingenuity of its inhabitants waited only for more favourable circumstances to increase its wealth. This change appears to have taken place in the seventeenth century, when, on the restoration of Charles II., a fondness for metal ornaments was introduced from France, where the exiled king and his adherents had long resided, and Birmingham took the lead in the manufacture of the glittering trifles which the taste of the age demanded.

Among other causes which favoured the progress of the town may be mentioned the operation of the Corporation and Five Mile Acts, and other arbitrary laws. The consequence of these enactments was the ejection from cities and boroughs with chartered privileges of many individuals, who settled in this comparatively inconsiderable town, and brought with them the capital and the industry which enabled them to seize on the advantages presented by its locality.

Except the parish church of St. Martin, Birmingham contains no edifices, either public or private, of greater antiquity than the black and white half-timbered houses of the sixteenth and seventeenth centuries, which are numerous in the older part of the town, in the suburb of Deritend, and in the line of street which Leland describes as forming 'the beauty' of the place.

Birmingham has not been the scene of any important historical events. It continued, from the time of the Heptarchy, in the possession of the Saxon family on which it conferred a name, whose members long paid 'homage, suit, and service,' at the command of the Norman conqueror, to the lord paramount, who resided at Dudley Castle. In the reign of Henry VIII. the last De Birmingham was ejected from his inheritance by the conspiracy of John Dudley, afterwards Duke of Northumberland. (See the narrative at some length in Dugdale's *Warwickshire.*) After the attainder of this nobleman, the manor lapsed to the crown, and was given by Queen Mary, in 1555, to Thomas Marrow of Berkswell, in the county of Warwick. It has since, by purchase and marriage, changed hands several times, and now belongs to Christopher Musgrave, of Foxcoat, in the county of Sussex. But the most important portion of the manorial rights, the market-tolls, were purchased a few years ago by the commissioners of the Street Acts, and are held by them for the benefit of the town.

In the year 1643 the even course of events was interrupted by the civil wars. The inhabitants of Birmingham, as it appears from Clarendon, had been by no means backward in the expression of their opinions on the important occurrences of the reign of Charles I., and had taken a decided part on the popular side by seizing the royal carriages and maltreating the attendants, and by supplying large numbers of sword-blades to the parliamentary troops, while they refused to execute orders given by the commissaries of the royal army. Accordingly, when Prince Rupert, the nephew of the king, was sent with a body of 2000 men to open a communication between Oxford and York, his progress through Birmingham was resolutely opposed, and a sharp skirmish took place, attended by the loss of several lives on both sides, and the destruction of a considerable portion of the town by fire. A spot of ground near the entrance from Oxford received, and has since borne, the name of Camphill; a name which still indicates the place where the prince halted the night before he forced his passage through the town. Three short pamphlets were published on the occasion, two of them by writers on the parliamentary side, and one by a royalist gentleman. They severally give a minute though somewhat confused account of the affair, each being coloured, as might be expected, by the prejudices of the writers.

At the close of the eighteenth century occurred the tremendous explosion of party spirit which has been since known under the name of 'the Riots.' On this occasion the motives and opinions of those who rejoiced in the dawn and progress of liberty in France were so far mistaken and misrepresented, that when, on the 14th of July, 1791, a party of respectable inhabitants met to celebrate the anniversary of the destruction of the Bastile, a mob was excited to break the windows of the hotel where the festivity was held. Emboldened by the impunity which attended this outrage, the assailants, in rapidly increasing numbers, proceeded to acts of more extensive destruction. The Unitarians had been for some time objects of dislike and suspicion from their known freedom of opinion; and among them Dr. Priestley, who resided in Birmingham, as minister of one of their congregations, was, from the uncompromising language of his writings, especially obnoxious. The two meeting-houses of the Unitarians, the house of Dr. Priestley, and the residences of several of his personal friends, were accordingly the objects of attack, and were destroyed by fire, or otherwise greatly injured and plundered in the course of the night of the 14th of July and the two following days. Among the loss of valuable property which attended these acts of popular fury, none was so greatly to be lamented as that of the library and laboratory of Dr. Priestley, in which were accumulated in MSS. the records of the labour of years, the facts collected during a life of industrious observation. These valuable MSS. were wantonly destroyed, scattered, and irrecoverably lost. The arrival of military aid, tardily afforded, at length dispersed the plunderers, and restored tranquillity; but the effects of bitterly-excited party feeling long remained perceptible in the various circles of the town.

The simple form of municipal government which existed when Birmingham was an obscure village has never been changed, though the forms of manorial authority have gradually adapted themselves to the demands of an increasing community. The authorities are the constables and a headborough, assisted by other officers, whose duty it is to superintend the weights and measures, and to examine into the quality of articles of food offered for sale: they are all appointed annually by the jury called by the bailiff of the manor, and assembled in *court leet*. During the long-continued non-residence of the lords of the manor, the bailiffs have gradually assumed an importance to which their actual official duties did not entitle them. They have long had the precedency in public meetings and on various occasions; and under the provisions of the late Reform Bill, which conferred the elective franchise on Birmingham, the high and low bailiffs are named as the returning officers.

Birmingham, from the nature of its staple employments, lay, till lately, under the stigma of *blackness* and *dirt;* but the improved processes, and the great change in the nature of its manufactures, with the excellent arrangements of the commissioners of the Street Acts, tend, especially in the newer parts, to remove these grounds of reproach. Its general aspect is that of a place suddenly and greatly improved; the streets lately altered or erected are wide, and the buildings are good. Many of the public edifices are substantially built, in a style highly creditable to the taste of the people.

Among the public buildings the most prominent are those adapted to religious worship. Till the commencement of the last century there was only one church in Birmingham, that of St. Martin's, which was erected at a very early date, and is still standing; but is disguised externally by a covering of brickwork, and internally by coatings of plaster, and numberless ornaments of dubious character. The spire, which is of lofty elevation and good proportions, is still unchanged. St. Philip's church, built in 1719, is correct and elegant in its proportions and ornaments, and adorned with an enriched tower of considerable height, surmounted with a dome and cupola.

Of the other places of worship belonging to the Established Church which have been since erected, St. Mary's, St. Bartholomew's, St. Paul's, St. James's, Ashted, and St. John's and Trinity, Deritend, are chapels of ease; Christ Church, St. George's, St. Peter's, and St. Thomas's, are churches in their respective parishes parcelled out from the entire parish of Birmingham. This division, however, does not extend to the parochial assessments, which are levied uniformly through the whole original parish.

The chapels of the various denominations of Dissenters are forty-five in number, and in several instances present marks of superior taste.

Till within a very few years Birmingham had no public buildings of any pretensions to skill in design; but latterly the commissioners and other superintending bodies have shown a laudable desire to beautify the town by employing the best architects. The town-hall is a magnificent building of the Corinthian order, the proportions of which are taken from the temple of Jupiter Stator at Rome. The exterior is of a grey marble brought from Anglesea; the extreme length of the building is 166 feet, the breadth 104, and the height 83. The interior length of the hall is 140 feet, the width 65, and the height 65. It contains a fine organ, said to be the most powerful in Europe, and is used for the great music festivals and for public meetings. The market-hall, lately erected in the High Street, is an extensive stone building, well arranged, with vaults beneath for storing goods; it is one of the finest structures of the kind in the kingdom. The public office, where the police sittings of the magistrates are held two days in each week, and where the business of the commissioners of the Street Acts and other public bodies is transacted, is a large and well-conducted establishment, at the back of which is the town prison.

The old grammar-school has been taken down, and a magnificent building in the middle Gothic style is now (1835) erecting on the old site, which has been enlarged considerably by purchasing some adjoining premises. The school, when completed, will undoubtedly be one of the finest buildings of the kind in England. It will contain a very large school-room with cloisters under it, a large room for a library, and spacious accommodation for the head master and usher.

The buildings which belong to the Public Institutions and Joint Stock Companies also present in many instances handsome fronts; as the Theatre, the Society of Arts, the Libraries, the Banking Companies, and the News Room.

The beast-market is near the site of the antient manor-house of Birmingham, and on the ground formerly occupied by its moat. A cemetery has lately been made near the Wolverhampton road, similar to that at Kensall Green, London.

For domestic purposes a plentiful supply of water has always been attainable at Birmingham by digging below the prevailing beds of gravel and sand; but in the higher parts of the town the water thus obtained is of the quality called hard; so that many persons have found employment and subsistence by conveying in wheel-carriages and in portable vessels the better water from the lower situations, where there are public pumps of soft water. The inconvenience attendant on this mode of supply has, however, induced the establishment of a water-company, whose reservoirs and forcing engine are placed at some distance from the town on the Lichfield road, and which at a moderate charge distribute an abundant supply of excellent water to all parts of the town.

Birmingham has for many years been lighted with gas. Of the two companies, one is seated near the town; the other has its establishment at West Bromwich, a distance of six miles; in this latter case the coal is burnt near the spot where it is procured, and the gas is conveyed by pipes through the intervening distance. The vicinity of the mining district, and the consequent necessity of finding a mode of transit for great masses of heavy material, as well as the bulk and weight of many of the articles of manufacture, early led to the construction of navigable canals in different directions from the town, as from a centre, towards the principal points of commercial distribution. The original canal, which communicated with the collieries, was inconveniently narrow, and very winding in its course. These defects have been remedied by opening a new line of canal, executed under the directions of Mr. Telford, which by wide and deep cuttings avoids the necessity of the ascending and descending chain of locks, which impeded the former communication. This canal is also remarkable for the grand proportions of the bridges of masonry and of iron, which cross the deep excavations. Birmingham will soon be the centre of extensive railway communications in different directions. That with London is now (1835) in progress.

Camden, who travelled through England in the sixteenth century, a few years after Leland, says of Birmingham, in his 'Britannia,' that 'most of the inhabitants be smiths;' to which Bishop Gibson, in his edition of Camden, published in 1722, adds, 'and other artificers in iron and steel, whose performances are greatly admired both at home and abroad.' The editor was, however, scarcely correct if he meant it to be understood that the manufactures of the town were in his time confined to iron and steel goods. Various fancy articles in other materials were then regularly made, and the manufacture of brass goods had commenced. The use of this valuable compound metal has continually increased during the last hundred years, and the talent of the designer has been tasked in the invention of new forms, and in the adaptation of classical models to the purposes of modern domestic comfort and ornament. The introduction of the stamp especially, which was first applied to the multiplication of copies of smaller wares, as buttons, buckles, and cloak pins, and which was at length adapted, by increasing its power, to the production of large forms, has caused the greatest change in this branch of manufacture. The process of casting, though preferable for many articles, is tedious; the forms require considerable repairing and finishing after they leave the sand, and the metal is necessarily so thick as to be for many purposes inconveniently heavy: but the stamp brings up the work on the die, on light rolled sheet metal, so that the most intricate and involved patterns are executed with the greatest precision; and by the ingenious application of separate parts, the work of the carver and gilder, in large decorative pieces of scroll and foliage, is successfully imitated.

In plated wares the style and form were long deficient in grace, but the taste and spirit of Messrs. Boulton and Watt were instrumental in improving the forms of the articles usually produced; and an increasing familiarity with antient models, and with the flowery and playful style of the age of Louis XIV., continues to give new impetus to this manufacture. The introduction of the new mixture called Albata, or British plate, will also, by its superior durability, increase the use of that material in domestic articles, superseding to a great degree the use of spoons, knives, and forks, plated on steel, which have hitherto been made in large quantities. In these manufactures also the stamp is extensively used, assisted by the chasing tool and hammer for ornaments of low relief.

The founding of iron is rapidly improving and extending itself. A comparatively few years ago the principal cast articles of this material were heavy kitchen articles, grates and stoves; but increased care in the selection of the metal, and a desire to produce elegant forms at a cheap rate, has caused cast iron articles to be manufactured of small size and of light and tasteful patterns, which, when coloured by bronzing, almost equal the more expensive brass wares; and in hollow vessels such perfection in thinness and lightness is attained, that the use of beaten copper is almost forgotten.

The manufacture of guns was introduced at the commencement of the last century, and has been carried on to an immense extent; a total of nearly 5,000,000 of fire-arms were supplied from Birmingham between the years 1804 and 1818 inclusive, to meet the demands of government and of private trade. A proof-house, under the conduct of a master, wardens, and trustees, has been established by act of parliament, where the fabric of all guns and pistol barrels is tried by a heavy charge: all those which sustain the explosion receive a stamp, to counterfeit which is felony; and to sell such barrels without the stamp is punishable by heavy fines.

Buttons and buckles, so far as they are articles of ornament, almost took their rise in Birmingham, and this town witnessed all the fluctuations of these manufactures, from the small plain buckle, and the horn or bone button coated with metal foil, through all the capricious and almost innumerable varieties of form and ornament which prevailed during the age of powder, embroidery, and gold lace, or which the still more fantastic taste of foreign markets demanded. At length the buckle has been completely supplanted by shoe-strings, and the button, except where the taste of foreign countries demands otherwise, is generally worn with a well gilt but plain or slightly ornamented surface. The denomination of 'The toy-shop of Europe,' given to Birmingham by Burke, was correct at the time, but the extensive application of powerful mechanical forces has now raised the character of the staple productions of the place. All articles of metallic ornament, such as polished steel toys, gold and gilt jewellery, chains, snuff-boxes, &c. are still manufactured, but not to such an amount as to form a characteristic part of the industry of Birmingham.

The quantity of silver used in the manufacture of pencil-cases, boxes, chains, thimbles, &c., and in the numerous fittings and mountings attached to glass and other wares, is considerable, and an Assay Office is established in the town, where all articles in this metal being above 5 dwt. are examined, and if found to be of the proper standard, are marked with the government stamp. The quantity of silver used in the manufactures at Birmingham is about 3000 ounces weekly, or 150,000 ounces per annum.

Japanning, in all its varieties, is another extensive branch of manufacture. It commenced with the varnished boxes and small articles, which were coarse imitations of the Oriental toys, but was gradually improved by John Taylor, who gave elegance to the devices on the surface; and still further by Baskerville, who introduced the light and highly polished but firm and durable *papier maché*, which he adorned with paintings in a style before unknown. This branch of industry has called forth great talent; and some of those who have taken rank among the painters of their age have commenced their career by executing the ornamental designs on the trays and waiters of Birmingham. Articles of this kind are susceptible of great elegance, and when produced in perfection are beautiful specimens of the pictorial art.

Glass making has long been carried on in Birmingham. This manufacture is not now confined, in its higher branches, to cut vessels for the table, nor to the sparkling drops which decorate girandoles and chandeliers; but the glass for the latter purpose is cast into forms of scrolls, foliage, busts, and well-formed complete figures of small size, with a degree of boldness hitherto unknown, and is rendered susceptible of all the variety of form which a metal could take; while the lathe and cutting-tool give it a perfection of surface which imparts a delicacy and a brilliancy attainable in no other material.

An apparently trivial article, the steel-pen, has latterly grown into such extensive use as to form a considerable branch of manufacture. The price has been perpetually diminishing, and the article itself, at the same time, continually improving. The principal manufacturer of steel-pens employs 250 individuals, and consumes annually upwards of forty tons of fine sheet-steel, each ton of which will make nearly 10,000 gross of pens. Supposing the whole work of the other manufacturers in the town to equal that of this individual, it will give a total of 800,000 gross, or nearly ten millions of steel-pens, annually made in Birmingham, besides the large numbers made at Sheffield and other places. This manufacture was first established in Birmingham about the year 1821, before which time the article was scarcely known in the market. Shortly after this date they sold for 12*s.* per dozen, but the price rapidly fell to 2*s.* per dozen, or 1*l.* 4*s.* per gross. The increasing facilities of production, and the consequent abundant supply, added to the competition of the numerous manufacturers, has since gradually sunk the price of well made 'three-slit pens' down to 1*s.* per gross, while commoner articles are made at a price very much lower.

The cutlers, lorimers, and makers of wrought nails, who in Leland's time formed the bulk of the industrious population of Birmingham, have thus been gradually driven away by the increasing demand for articles requiring more taste and skill in design and execution. Agricultural and manufacturing steel and edge tools, including files and saws, are however still made, and a number of new manufactures have been introduced during the last half century, which owed their origin to the facilities afforded by the newly created mechanical forces, that gave a spur to invention by almost insuring its success. Among these are wire-drawing, cut-nail, screw, and pin manufacturing. Fine turnery would naturally arise from the increasing use of the lathe. Die-sinkers, modellers, and designers were required by those who used stamps and casting-moulds; and engravers were called for to represent in the books of patterns exhibited by the merchants the forms of the numerous articles prepared by brass and iron-founders and other manufacturers. Artists in these several lines have been thus drawn to the place, and the arts themselves are cultivated to a degree of perfection before unknown out of the metropolis.

The establishment of gas companies gave an impetus to the manufacture of tubes of various descriptions, as well as to the taste of the designer in forming graceful combinations for the introduction of the new and beautiful light into shops and houses.

Some branches of the cotton manufacture have been localized in Birmingham, such as those of webbing for braces and girths, cords, lines, &c., probably on account of the facility with which the requisite machinery could be procured.

The umbrella trade arose from the demand for the brass furniture of these useful contrivances; which led to an attempt to execute orders for the article complete.

In the nail manufacture, as carried on in Birmingham, machinery is used by which well-formed nails are cut out of sheet-iron, with a rapidity which leaves far behind the swiftest motion of the muscles in snipping paper with scissors. Nails thus cut receive by powerful pressure well formed heads, while a happy application of chemical science, in annealing, gives them a tenacity which almost rivals the productions of the fire and the hammer. A more desirable object could, indeed, be hardly conceived than that of finally superseding by improved methods the slavish labour of the nail-block, which still employs, at a rate of wages hardly sufficient to support life, from 20,000 to 30,000 persons in the neighbourhood of Dudley and other places on the north-west side of Birmingham.

Screws are also formed with beautiful precision without heat, and by a series of mechanical contrivances which remove the severity of the labour, and render the attention and superintendence of women and children nearly sufficient.

The machine used for the making of button-shanks is another of those aids to human industry in which the most intricate motions, regularly repeated, are successfully imitated. A single revolution of the machine cuts the suitable length from the wire, bends it into its proper curves, and gives to its extremities the flattening which is necessary to fix the shank to the surface of the button.

Of the more ponderous apparatus that of the rolling-mills is the most interesting. In these a vast force is necessary, in order, by simple compression, to dilate into a long and thin sheet the bar or ingot of metal. The action of the steam engine, the source of motion, the rapid revolution of the large and heavy fly, almost baffling the eye in its efforts to follow its course, and the perpetual whirl of the rollers elongating the hard material presented to them, altogether give to the stranger a striking example of the wonderful power and almost endless application of the force of steam. Steam-engines are now very numerous in Birmingham, the number being about 110, and the total power, technically expressed, is nearly that of 2000 horses. In fact, steam-power is an article produced in great quantities for sale. A person who conducts a small manufactory in the vicinity of a principal steam-engine, willingly pays a certain sum as rent in order that he may be allowed to bring into his building a revolving shaft to give motion to his range of lathes, as the work executed by each man is much increased if he be relieved from the labour of turning the wheel.

Every condensing steam-engine of moderate size pours forth a constant stream of hot water, now suffered to run off to waste, sufficient to keep constantly heated to 100° a tank of water containing from 1000 to 2000 cubic feet. A very trifling outlay would, from such a source, form a system of warm-baths surpassing in the abundant supply of water, and in the price at which it could be obtained, the most splendid bathing establishments of imperial Rome. The luxury of a warm-bath might be thus enjoyed at a cost consistent with the means of persons in every class. The use of such baths would give to the working man, soiled and exhausted with the labours of the day, a feeling of healthy enjoyment of which at present he has no conception, and would send him forth in a fit condition for enjoying rational recreation, or for profiting by those means of instruction which are offered to him by the various existing institutions. (See *Birmingham and its Vicinity*, by W. Hawkes Smith, pt. i., p. 15, London, C. Tilt, 1834.)

The principal staple machines of the workshops are the stamp, the press, the lathe, and the draw-bench. The stamp and press are used to multiply copies of a given form engraven on a die, or to cut out pieces of metal of similar size and shape: the former, by the sudden blow of a descending weight; the latter, by the gradual but more effective descent of the die, urged by a screw worked round by a long and loaded arm.

The lathe is well known as the instrument used in turning, or producing, by the action of a sharp chisel or cutting-tool on the rapidly revolving material, correctly circular forms; and it is most extensively in use in smoothing and polishing the various metallic wares. An ingenious addition renders the lathe applicable to the production of oval forms.

The action of the draw-bench is to elongate a piece of metal, while an equable thickness is preserved, by forcibly drawing it through a small hole in a steel-plate. This is not only useful in the wire manufactory, but also in the lengthening of tubes; in regulating the surfaces of various cylindrical and other continuous figures, as the bodies of candlesticks, pencil-cases, &c.; and in giving uniform folds, or moulded curves to strips of metal for various purposes.

With these few contrivances to assist the file, the hammer, and other hand-tools, the skilful workman produces the infinitely varied fabrics of ornament and utility for which the town is so much celebrated.

It is not difficult to obtain access to most of the manufacturing establishments in Birmingham, and the visitor, in the course of his researches, is equally delighted by the power and precision of the machinery employed in some branches, and by the ingenuity of hand which is still required in others.

The working population of Birmingham has rapidly increased within a few years, and now composes the great bulk of the inhabitants. A reference to the parochial accounts shows, that out of a total of 30,600 assessments, 16,000, or a large half, are composed of those which are rated at 5*l.* per annum and under; and 8060, or more than another fourth, from 5*l.* to 8*l.*

Education.—Charities.—In the 'Twentieth Report of the Commissioners for Inquiring into Charities' (dated 12th July, 1828), 114 folio pages are devoted to the charities of Birmingham. We avail ourselves of this to give some account of the establishments for education.

Free Grammar-School.—The Free Grammar-School was founded and chartered by Edward VI., in the fifth year of his reign, 'for the education, institution, and instruction of boys and youths in grammar.' The government of the school and the management of the revenues were vested in twenty discreet and trusty men of the town and parish, who were in the first instance nominated by the crown, but were empowered to fill up the future vacancies which might occur in their own body. They were constituted a body corporate, with power to have and receive of the king or others lands and other possessions for the purposes of the charity. The school was then endowed by the king with the property of the dissolved religious establishment called the Guild of the Holy Cross, which was to be held in common soccage at a rent of 20*s.* per annum. The governors were to nominate the masters, and, in concurrence with the bishop of the diocese, were from time to time to make written ordinances for the government of the school. It would be tedious to recapitulate the minor details in the history of this establishment, and we shall therefore merely describe its state in 1828: only previously mentioning that since 1676 a sum has been set apart to furnish exhibitions at Oxford or Cambridge, for scholars chosen from the more advanced pupils of the school. The amount appropriated to this purpose, and the number of the exhibitions, have been altered from time to time: but since 1796 the number has been ten, at 35*l.* each. The successive regulations made by the governors appear very generally to have been framed with the view of adapting the establishment as nearly as possible to the changing wants of the community. The income of the charity estates, which consist of numerous houses and other buildings in the town, erected for the most part under building leases granted for long terms of years, and of pasture-grounds and gardens adjacent to the town, amounted in 1827 to 3314*l.* 14*s.* 1*d.*; and it was then calculated that, through the expiring of leases, it would become about 9000*l.* by the year 1840, and about 11,000*l.* by 1850. The actual income

(1835) is about 4000*l.* The income was thus appropriated in the year mentioned:—

	£.	*s.*	*d.*
Salaries, &c.	1393	15	10
Branch schools . . .	370	1	10
Exhibitions	315	0	0
Secretary and law charges .	433	12	8
Repairs and improvements .	126	18	3
Taxes. &c.	155	5	9
Balance against the charity from preceding year	114	9	2
Total . . .	£2909	3	6

The funds of the charity have been applied to the maintenance of a grammar-school and other schools in the town of Birmingham. The smaller schools have amounted to eight: six for the instruction of boys in the English language (in one of which drawing was also taught), and two for the instruction of girls in reading, knitting, and sewing. In 1827 all but one of these had been discontinued, in consequence of the question which had arisen concerning the validity of some of the statutes, and in consequence of the proceedings in Chancery on the subject. The governors however continued to exercise the privilege of sending sixty children to the national school in Pinfold-street, in lieu of a ground-rent of 15*l.* payable to them by the trustees of that institution.

The proceedings in Chancery alluded to above commenced in 1824; and in July, 1825, an order was made by the master of the rolls, directing an inquiry, by a master in chancery, into the state of the property, and the propriety of rebuilding the school-house, and also directing the preparation of a scheme for the future establishment of the school. This order was confirmed by the vice-chancellor in January, 1828; and in March, 1829, the master made his report and presented the scheme, which was varied, amended, and confirmed by a Chancery decree, dated June 7, 1830. The scheme provided, among other things, that in the said grammar-school the learned languages shall be taught, and be conducted by a head-master and usher, with an assistant to each. That a master to teach writing and arithmetic should also be appointed by the governors, at a yearly salary of 100*l.* That the head-master and usher should have taken at least the degree of M.A. of Oxford or Cambridge, and be members of the Church of England and in holy orders, but to hold no ecclesiastical office requiring them to perform in person weekly parochial duty. That the salary of the head-master should be 400*l.* per annum, exclusive of the rents and profits of certain lands, for which however the governors are empowered to compound; and that of the usher 300*l.* per annum: each of them to be also provided with a house free of rent and taxes. That the master and usher should each nominate his own assistant, subject to the approval of the governors, and that the salaries of such assistants should be 200*l.* per annum each; and in case of the master or usher not filling up a vacancy within three months of its first occurring, then the governors alone to appoint such assistant. That no boy should be admitted into the school under eight years of age, or who is unable to write and read English, nor any boy continue in the school after having attained the age of nineteen. That boys not sons of inhabitants of Birmingham or adjacent places shall pay such sums for their education as the governors shall fix. That ten exhibitions of 50*l.* a year each should be founded for the grammar-school boys going to Oxford or Cambridge, two exhibitioners to be elected in one year, and three in the following year, and so on alternately: the exhibitions to be held for four years, but residence during terms to be indispensable. That an annual visitation be held, and an examination of the boys take place, as to their proficiency in learning, 'and whether they appear to be instructed and well-grounded in the fundamental principles and doctrine of the Christian religion; provided nevertheless that no boy shall be subjected to such examination if the parents or guardian of such boy shall in writing state to the examiners that they object to that part of the examination.' That the governors should have power, with the advice of the bishop of the diocese, to provide a library for the use of the school, and to establish a system of rewards for eminently deserving boys in or quitting the school. Exceptions were filed to this report, which were overruled, and the report confirmed. In April, 1830, the master's report was presented, recommending the rebuilding of the school-house, and showing the increasing value of the property. This report also stated 'that it would be of great benefit to the inhabitants (of Birmingham) if a school were established for the education and instruction of boys in modern languages, the arts, and sciences;' and 'that the governors conceived that it would be for the benefit of the said town of Birmingham, and not prejudicial to the objects of the said charter (*i. e.* to the old grammar-school), to apply a portion of the said surplus revenue of the said charity to support a school of the description last mentioned.' The better to carry the above reports into effect, an act was obtained in August, 1831, regulating the grammar-school according to the scheme just detailed, with the exception of limiting the number of boarders to be respectively taken by the master, usher, and assistants, which had been fixed by the scheme at thirty, twenty, and ten, to eighteen, twelve, and four; any future assistants not to be allowed to take any boarders, and the governors to have no power to increase the number of boarders to be taken by the master and usher. It is enacted also that the new school for teaching modern languages, the arts, and sciences, shall be regulated by a scheme to be approved of by the Court of Chancery, upon a petition to be preferred by the governors; and the governors are empowered to purchase a surrender of certain leases in order to erect the school-house, masters' houses, and other erections for the purposes of the said school. Also power is given to the governors, and they are required within eight years from the passing of the act, to appropriate a sum not exceeding 4000*l.* for the establishing of four schools for the elementary education of the male and female children of the poorer inhabitants of Birmingham, and to nominate masters and mistresses with such salaries, payable out of the rents of the charities, as they may think expedient. In case of there being any surplus remaining, or hereafter accruing, such surplus to be applied, under the direction of the Court of Chancery, in 'improving, enlarging, extending, or increasing the said free grammar-school, the said new school for teaching the modern languages, the arts, and sciences, and the said elementary schools, or either of them, or for promoting the objects of the said respective schools.' An abstract of the accounts of the income and expenditure is to be annually published in some newspaper printed and published in Birmingham; but no alteration is made in the appointment of the governors, who remain self-elective, subject to certain qualifications. We have elsewhere mentioned that the building of these schools is in progress.

Blue-coat School.—This school was founded in 1722, by subscription among the inhabitants, assisted by a grant of a site for the school and some surrounding land from Lord Digby, the Bishop of Lichfield and Coventry, and others. The property, as augmented by subsequent bequests of lands, and premises, and money, produced 1029*l.* in 1827, of which 173*l.* 16*s.* arose from investments in the funds, other moneys having been invested in land. Adding to this annual subscriptions and collections, and casual benefactions, the whole income exceeds 2000*l.* The greater part of this amount is annually exhausted by the current expenses of the school, at which about 160 children of both sexes are instructed in reading, writing, and arithmetic, and the principles of the Christian religion as professed by the Church of England, and are entirely clothed, lodged, and boarded. The institution is under the management of a committee of the subscribers. A number of children, varying from ten to twenty, are also kept in this school, under the charity of George Fentham, a mercer of the town, who by will, dated 1690, left property now producing about 308*l.* per annum, a proportion of which was to be applied to teaching poor children, male and female, 'to know their letters, spell, and read English,' and to putting them out as apprentices. The trustees pay to the Blue-coat school 11*l.* per annum for the board and lodging of each child, and allow to the master and mistress of the school a gratuity of 10*l.* for their additional trouble. These children are fully clothed once a year: they leave the school at the age of fourteen; and if opportunity offers, they are apprenticed (without premium).

Piddock's charity.—The rents and profits of a farm, bequeathed by William Piddock, became applicable in 1763, to the schooling, apprenticing, or otherwise to the benefit, of poor boys of the parishes of St. Martin and St. Michael. The farm now lets at 45*l.* Previously to 1820, the trustees used to contribute 30*l* per annum to the Madras school of the town, in consideration of being allowed to place sixty children therein; but a debt having been contracted in rebuilding the premises in 1820, none of the proceeds were in 1827 applicable to this purpose. It was expected that the charity would again become operative about this time.

Ann Crowley's Charity.—Under the will of this lady, with an addition afterwards made by Mrs. Scott, 6*l.* is paid to a school-mistress for instructing, at her own house in Birmingham, ten girls sent by the trustees, to read, sew, and knit; and a further sum of five guineas is disposed of in the purchase of cloth and worsted, for the girls to work up into clothing for their own use.

Protestant Dissenters' Charity-school.—This school is situated in Park-street, where it has been carried on for many years. It originated in and is still principally supported by voluntary contributions, with the addition of legacies and other casual benefactions. There is no land belonging to this charity, except that on which the school-house stands.

Sunday-schools were early established in Birmingham, and they are now supported by the congregations of all the religious sects, both in the Establishment and among the dissenters, and not less than 16,000 children are constantly in course of receiving at these seminaries the humble but useful portions of elementary knowledge which they are capable of bestowing. Twenty day-schools, including the Blue-coat School and nine Sunday-schools, are connected with the National School Society. In the former there were 1664 boys and 1813 girls, in March, 1835; and in the latter 1050 boys and 735 girls. (*Report of the National Society,* 1835.) A charity-school, attached to the Established Church, maintains nearly 200 children of the two sexes; another, called the Dissenting Charity School, receives 50 girls. There are several schools on the plans of Lancaster and Bell, and infant-schools which receive pupils between the ages of two and six; and an excellently managed school for the deaf and dumb, where nearly 50 of these unfortunate individuals are instructed, and rendered capable of usefulness and enjoyment. An extensive and well-conducted parochial asylum for the infant poor provides for upwards of 400 children, who would be otherwise destitute, and who are judiciously educated, and taught early to spend a portion of their time in useful and profitable labour.

Several useful institutions for intellectual improvement are supported principally by individuals of the working classes. Among these is a well conducted Mechanics' Institute, not so numerous in its list of members as might be expected in such a place, but zealously supported. This institution gives class instruction in writing, arithmetic, mathematics, drawing, and the languages, under able tuition; and it contains a well selected library of 1200 volumes. A weekly lecture is given on subjects connected with science, art, history, and general literature.

The Artizans' Library was founded at the commencement of the present century, and is supported by small quarterly subscriptions. It consists of 1500 volumes.

The Social Union for improvement and recreation is of late date. It consists entirely of persons of the working classes, and its members meet at fixed times, and alternately hear lectures and join in conversation, or enjoy musical and other entertainments.

The efforts of the Temperance Societies are also felt in Birmingham. Large numbers enrol themselves in these institutions, and numerous instances are weekly produced of persons who, urged by the considerations presented to them, have succeeded in forsaking their habits of vicious indulgence.

Sick clubs and benefit societies are of old establishment; but many of them have been proved by experience to be founded on erroneous calculations, and nearly all are rendered useless by the condition of holding their meetings at the public-house, where the members are induced to lay out money in drink. This radical defect is now in course of removal by the recent establishment of Provident Societies, on true principles, which meet for despatch of business at the vestry-rooms of various places of worship, or other places unconnected with needless and prejudicial expenditure. All such institutions, supported and managed totally or principally by the working people themselves, whether directly devoted to education or not, are peculiarly valuable as tending, each in its own way, to give them habits of frugality, knowledge of business, and to elevate their general character.

There are in Birmingham numerous charitable institutions, which are well managed and liberally supported. Among these may be named the General Hospital, whose funds are assisted by the celebrated triennial musical festivals, now held in the town-hall; the Dispensary; a society for the suppression of Mendicity; a Magdalen Institution; and a great variety of minor associations for supplying clothing and other comforts to the necessitous poor.

The upper and middle circles of Birmingham are a highly improved and intellectual community. Great attention is paid to the cultivation of literature and the fine arts. Besides circulating and other minor libraries, there are two principal public collections of books,—the Birmingham Library, containing 16,700 volumes, and with 560 subscribers of one pound per annum; and the New Library, containing 4000 volumes, and with 360 subscribers. There are also many reading societies, in which the new publications circulate among the members. In New Street are the rooms of the Society of Arts for the exhibition of pictures by antient and modern artists. Concerts of a high order of excellence are given, and the exhibitions of the Society of Arts are of the very first class. A botanical and horticultural society has been formed whose gardens are on an extensive scale; and the school of medicine presents advantages second only to those of the metropolis. A philosophical institution is liberally supported, and there is also a spacious and well supplied news and reading-room.

Population of the parish of Birmingham .	112,000
„ of the suburbs, connected with the town but in the adjoining parishes .	8,000
Total	120,000

Comparative state in 1815 *and* 1831.

1815	Population	78,000	Assessments	£247,050
1831	„	112,000	„	281,611
Increase per cent.		50	„	12½

State of the closely peopled divisions.

Parishes.	Extent in acres.	Value of fixed property per acre. £	Total value. £	Population per acre.
St. Phillip's	118	9145	1,080,000	136
St. Mary's	130	7075	929,000	136
St. Peter's	143	5172	740,000	104

Extent of the entire parish, 2810 acres. Average population, 41 to an acre.

Assessments.

Under £5 per annum	16,000	Class C, or one-half of the population.
„ 5 to 8 . .	8,000	Class B, one-third.
„ 8 to 12 . .	2,200	
„ 12 to 15 . .	700	Class A, one-seventh.
„ 15 and upwards	3,700	
Total Assessments	30,600	

Local taxation, as annually paid.

Rates paid by	Class A. £	B. £	C. £	Totals. £
Poors'-rate	3,190	8,400	3,700	44,000
Highway, Lamps, Town-hall, &c.	20,500	2,500	—	23,000
	32,400	10,900	3,700	67,000

Amount of a rate of 1*s.* in the pound £7800. (*Communication from Birmingham.*)

BIROSTRITES, in zoology, a fossil to which Lamarck has given the generic name at the head of the article. He has placed it under his family *Rudistes*, a family which, as Mr. G. Sowerby observes (Genera No. 11.), might be struck out; for there can be hardly any doubt that Lamarck has misconceived or misplaced the genera of which it is composed. G. Sowerby, from an examination of the cast of the inside of the shell, expresses his conviction that *Birostrites* ought to be placed next to *Diceras*, or at least in the same family with *Chama* and *Diceras*, inasmuch as it accords very nearly with those shells in its internal characters.

The following is Lamarck's description of this singular fossil. Shell composed of two pieces or valves, which do not unite by the edges of their base, one enveloping the other, and the dorsal disk of each being elevated into a nearly straight cone slightly arched within. These horn-shaped valves are unequal and diverge obliquely under the form of a very open V. It seems as if one valve came out of the base of the other, and it is always the shortest that is enveloped.

Birostrites inæquilobus is the only species which Lamarck records.

The reader who wishes to follow the steps by which naturalists have arrived at their conclusions as to the true structure of these fossils may consult the 'Description de plusieurs nouvelles Espèces d'Orthocératites, par M. Picot de Lapeyrouse,' (Erlang, 1781, folio); the elaborate 'Essai sur les Sphérulites,' by M. Charles Des Moulins, in the first volume of the 'Bulletin d'Histoire Naturelle de la Société Linéenne de Bordeaux' (1826), where he proves that the genera *Sphærulites*, *Radiolites*, and *Birostrites*, are identical; and above all, the acute 'Observations sur la Famille des Rudistes,' by M. Deshayes, in the 'Annales des Sciences Naturelles,' (1828). M. Deshayes, admitting the soundness of the views of M. Des Moulins as to the identity of the three last-mentioned genera, rejects the theory of that naturalist, who proposes to place them as a class intermediate between the *Tunicata* and *Acephala*; brings forward additional evidence to show, that *Birostrites* is identical with *Sphærulites* (its nucleus in fact), and that there are two very large and lateral muscular impressions, a powerful hinge, and a ligament of a force equivalent to the thickness and extent of the valves. M. Deshayes concludes by declaring his opinion of the inutility of *Rudistes* as a family, characterized and placed as it was, and adds that of the three genera which remain, the *Spherulites* and the *Hippurites* approach very closely to the *Chamæ*, in which situation they will form a well characterized small family or group. *Calceola*, he observes, having a greater relationship to *Crania* than to any other genus, might be without inconvenience comprehended in the family to which the latter belongs, viz. the *Palliobranchians* of Blainville, or the *Brachiopods* of Lamarck and Cuvier.

BIRR, or PARSONSTOWN, in the King's County in Ireland, situated in the parish of Birr and barony of Ballybritt, on the Birr or Comcor river, close to its confluence with the Little Brusna, a considerable stream flowing westward from the Slieve Bloom mountains to the Shannon. It lies in 53° 7′ N. lat., and 7° 51′ W. long.; sixty-eight Irish, or eighty-seven English, miles from Dublin. The parish contains, according to the *Down Survey*, 4995 acres, 3 roods. Birr is not a borough town: the only parliament in which it has ever been represented was that of James II. in 1689. From its central situation it has been distinguished by the title of *Umbilicus Hiberniæ*, or navel of Ireland; and a hollowed stone used to be shown here as the identical spot referred to by the appellation, which is as old as the time of Girald Cambrensis. Parsonstown is at present the authorised name of the place, and seems to have been recognised as such occasionally since 1621; it has, however, been known as Birr since the middle of the sixth century, when Brendan, a disciple of Finian of Clonard, founded the monastery here, which first distinguished it from its surrounding localities. Birr is also the name most commonly in use, as well as that best known in history. During the ninth century, the most disastrous in early Irish annals, Birr was considerable enough to afford frequent spoils, both to the contending native factions, and to their common invaders the Danes. In 1162 it was burned down, and before the beginning of the next century was granted by Henry II. to Theobald Fitzwalter, *Pincerna Hiberniæ*, ancestor of the great Irish house of Butler. Its original possessors had been the chiefs of Ely O'Carrol, in which territory it is situated, and they disputed the tenure so successfully with the new proprietors and their lessees, that, after frequently changing hands, as the forces of either party prevailed, Birr, along with the surrounding district, came at length by royal patent into the possession of William O'Carrol, chief of Ely O'Carrol, in 1557. But the native owners soon forfeited their hardly-vindicated title: and in 1612, Ely O'Carrol, being confiscated anew, was made shire-ground, and disposed of to British undertakers by James I. Sir Laurence Parsons, a gentleman of good family from Norfolk, became the new proprietor in 1620. The castle was then standing, as also the neighbouring hold of Ballybritt; both of which had probably been erected by the early conquerors. On the first plantation of Leix and Ofaly, Birr had been considered as lying in Munster, nor does it seem to have been included in the King's County until after 1604. In the hands of Sir Laurence Parsons, however, it soon attained to the eminence of a county town, and became important as a stronghold of British interest thenceforth to the Revolution of 1688. Many new streets were built during his time; he added flankers and a barbican to the castle; and it appears by inquisition that at his death there were in the town five water-mills. When the civil wars broke out in 1641, Birr was held for the English by its proprietor and governor, Captain William Parsons, but after a rather severe siege he was obliged to surrender to General Preston for the Catholic Confederates in 1642, and they in turn were dispossessed by Ireton for the Parliamentarians in 1650. Captain Parsons, having ultimately sided with the popular party, was restored to his wasted estates two years after, and the town of Birr seems to have recovered so rapidly from its disasters as to have become a place of some note again before the restoration. Some of the merchants issued their own coinage during these times; and in 1682 the woollen manufacture, which was for a long time afterwards the staple trade of the town, was introduced. In the succeeding wars of 1689, Sir Laurence Parsons, being suspected of disaffection, was directed by the government of James II. to render his castle of Birr to his own agent, one Oxburgh, who had raised a royalist troop of horse, as it is said, out of the rents of his employer, and now enjoyed the rank of colonel in the army. Sir Laurence, standing upon terms, was adjudged guilty of high treason, and condemned accordingly; but successive reprieves delayed the execution of the sentence until the next year, when the battle of the Boyne gave him his liberty, and restored him once more to the possession of his estates. Birr castle had still to endure another siege by Sarsfield, but was so well defended by Sir Laurence's lieutenants in his absence, that the Irish broke up their batteries after the first day's cannonade. The town and castle were then occupied by William's army, and by them surrounded with earthen ramparts.

The quarter-sessions of the peace are held here, and in the sessions-house is also held on the first Monday in every month the Court Baron of the manor, before a seneschal nominated by the Earl of Rosse. Five officers of health are appointed annually, whose province extends as well to the cleansing of the streets and general purification of the town as to the superintendence of its establishments for the relief of the sick. The chief object of architectural interest in Birr is the castle, the residence of the Earl of Rosse, built upon the site of the old tower held by the O'Carrols, and still embracing some of the walls battered by Sarsfield's cannon: here are some curious tapestries, and a few good pictures; but Birr Castle is mainly distinguished by an observatory, amply furnished with the best astronomical apparatus, added by the present Lord Oxmantown, eldest son of the proprietor. The great telescope is said to be larger than the famous one of Herschel. The new church is a rather fine-looking building, in the Gothic style, with a tower 100 feet high: the whole cost was about 8000*l*. The old church has gone to ruin, and in 1826 was quite dismantled; the old chapel is also in a very decayed state, but the new Roman Catholic chapel is a handsome Gothic structure of cut stone, with a spire 124 feet in height: the first stone of the foundation was laid by Lord Oxmantown in 1817, and Catholics and Protestants subscribed with equal liberality to the erection: the chapel is dedicated to Saint Brendan. The court-house, jail, and excise-office are in the chief street; Duke Square, in their vicinity, is ornamented with a column about fifty feet high, supporting a statue of the Duke of Cumberland, raised by subscription in 1747 to commemorate the battle of Culloden. Here are a mendicity-house, a fever-hospital, and a dispensary, supported by voluntary subscriptions and county presentments. There is also a charitable association for the relief of distressed housekeepers. Birr contains from thirty to forty streets and lanes, and has three bridges over the Birr and Brusna rivers. Its population in 1821 was 5406 persons, and in 1831 amounted to 6594; but, as the adjoining villages of Seffin, Crinkle, Ballindarra, and Ballyloughnane lie so close as almost to constitute suburbs, the place at large is in reality much more populous. Birr was formerly a town of some manufacturing importance, but the woollen trade has yielded to distillation, which has latterly been its chief support as a commercial town. The linen trade has also been encouraged, but the situation of Birr is not likely to admit of much commercial prosperity, as it lies too far from the Shannon to benefit by water-carriage, and is still so near other towns possessing that advantage, as to prevent its becoming an independent inland market. The barracks, built to accommodate 2000 men, lie about half a mile from the town, and have sixty acres of land attached for holding reviews. The mendicity free-schools are supported partly by subscription and the liberality of the Earl of Rosse, and partly by the government. There were, in 1824, in the town and suburbs, 20 schools of various kinds; and in the parish of Birr at large, 31 schools, educating about 600 males and 400 females. There is a public reading-room, but no regular library. The neighbourhood is rich and well cultivated, and the gentry and proprietary in general resident.

(*The Picture of Parsonstown* (privately printed, Dublin, 1826); *Statis. Surv. of King's County;* Archdall's *Monast. Hib.; Calendar of Inquisitions for Leinster; Appendix to Second Report of Commissioners of Education;* Pettigrew and Oulton's *Dublin Almanac and General Register of Ireland for* 1835; *Communication from Ireland.*)

BISCA'CHO. [See LAGOSTOMYS.]

BISCAY, BISCA'YA, or VIZCA'YA, LORDSHIP OF, one of the Basque provinces in Spain. For the etymology of the name see BASQUE, which appears to be the same word: thus the inhabitants of the three provinces are indifferently called Vizcaínos and Bascos. The lordship of Viscaya extends from 42° 55′ to 43° 30′ N. lat., and from 2° 30′ to 3° 25′ W. long.: it is bounded on the north by that part of the ocean called the Bay of Biscay, on the south by Alava and Old Castile, on the east by Guipuzcoa, and on the west by Old Castile. The territory is occupied by mountains, with numerous narrow valleys and well-cultivated plains between them, which give the country a singularly pleasing aspect, both for the agriculturist and for the lover of the picturesque. Some of the mountains appear like several hills heaped upon one another, such as that of Gorveya, which is reckoned to require five hours' walking to reach the top. On its summit is a large plain, which furnishes abundant pasture to cattle during the summer months. Near Durango there are other mountains, or rather large masses of calcareous rocks, naked, and of very difficult ascent. Near the bar of Portugalete is the lofty Serrantes, an immense natural pyramid, which points out to sailors the entrance of the port, and which Bowles considers to be an extinct volcano. There are other mountains, which terminate in bare points of calcareous rocks, yet have a very easy slope, are well cultivated, and covered with neat farms. There are some round low hills, which are inhabited, and well cultivated to the summit.

The soil rests in general upon rock of different kinds, some of which rises above it in immense masses of sandstone, calcareous rocks, or pure marble. The marble is nearly black, with white spots and veins. Several torrents descend from the mountains, which in the rainy season have a full stream, but in summer are almost dry. The coast is very abrupt and deeply cut in different points, through which the sea penetrates to a considerable distance inland, forming *rias* and ports for fishing-boats and small trading vessels. The principal of these ports are, from east to west, Ilea, Bermeo, Plencia, and Portugalete.

With the exception of the arable land and the bare summits of the highest mountains, the province is covered with natural or artificial woods of wild holly, arbutus, and oak. Where the soil is not deep enough for raising large trees, it is covered with argumas, or furze, and several species of erica, or heath. The lower parts of the mountains are planted with oak and chestnut. Apple-trees grow in every part of the province almost without cultivation. Cherry-trees grow to the size of a large elm, and the peaches are among the best in the peninsula. There are several species of pears, two of currants, and several varieties of figs and walnuts. Strawberries are indigenous in Biscay; those that grow wild in the woods are not very large, but when cultivated in the neighbourhood of Bilbao they are of the best in Europe. The kitchen vegetables are excellent and plentiful, particularly onions, which are very large and sweet. In the territory of Bilbao, Orduña, and the Encartaciones, very good muscat and white table grapes are cultivated; and likewise the common grape, of which the Biscayans make their chacolí or wine. Some of the vines are high and planted by the side of the road, or near the farms; but the greatest part of them are low vines, rising between three and four feet above the ground. The chacolí is one of the products which gives most profit; but as the municipal authority fixes the price for sale, and absolutely prohibits the introduction of any other wine while it lasts, the farmer only attends to the quantity and not the quality of the liquor he makes. Bowles says, that if the grape was allowed to ripen, and the wine to ferment completely, chacolí would be a sparkling wine little inferior to champagne.

The soil of Biscay is in general clayey, and although from time immemorial the farmers have mixed it with calcareous earth to render it lighter and more fertile, it is only by great labour that it is rendered productive. In October the earth in the plain is dug up in large clods and left till the spring in that state, when it is broken to pieces and planted with Indian corn, pumpkins, and scarlet-runners. This crop is gathered in October, when wheat is sown; after cutting which, in the following August, the soil is left bare, and produces only grass for the cattle. The labour on the low hills is different; in July and August, the turf is dug up and formed into heaps, which being hollowed are filled with dry brushwood and burnt. The ashes and burnt earth are then strewed about. The three first years the soil produces abundant crops of wheat, in the fourth year they sow it with rye, and in the fifth with flax; afterwards, it is left for pasture-ground.

All the province abounds with game. The partridges and quails are exquisite. There are also wild doves, snipes, and woodcocks. The chimbo, a very delicate bird of passage, arrives at Biscay in August, and remains there till the end of October. Hares are not very abundant; but deer and wild rabbits are plentiful. Wolves are very rare, and it is still a greater rarity to find a bear, but foxes are plentiful everywhere. The oxen of Biscay are small but strong, and give a very juicy and well-flavoured meat. There are also goats, and a few sheep. The sea and rivers abound in delicate fish, not inferior in flavour to that of Asturias and Galicia.

Biscay is very rich in minerals: the most common is iron, which is found in almost every part of the province. The richest mine, and that which contains the most malleable metal, is that of Somorostro. Every body is allowed to dig out the ore, to take any quantity he pleases, and to transport it where he pleases, without paying any duty. A hundred pounds of ore produce from thirty to thirty-five pounds of iron.

The population of Biscay is reckoned by Miñano (1826) at 132,000 inhabitants, and by Malte Brun at 133,000, distributed in one city, twenty towns, seventy anteiglesias, and ten valleys or republics. The only city in the province is Orduña, and the principal villa or town is Bilbao, the capital of the province: but the whole province appears one large town composed of isolated farms, a certain number of which form a parish with a church in the centre. The houses are in general two stories high; the ground-floor is used for the cattle, cellaring, and the implements of agriculture; the first floor is occupied by the family, and in the second the grain and fruits are preserved. Every house has an oven, a kitchen-garden, an orchard, and a certain portion of arable land and woodland. In former times, the houses were built of stone to the first floor, and the second of wood, but at present they are all of stone, floored with wood. It is the greatest rarity to see a ruined house, while new ones are often built. The greatest part of the farms are cultivated by their owners, who are called *echejaunac*, that is, lords of the house, in possession of whose family they have been from time immemorial, as every family considers it a disgrace to sell the patrimonial house. In general, the name of the family expresses the situation or some other circumstance of the house; hence the names, Echaluze, Goicochea, Goyeneche, &c. In this, as in all the northern provinces of Spain, are found those old edifices called Solares, from the founders of which the antient nobility descend. These buildings are of very simple construction, flanked by strong towers: at present very few of them exist. The greatest part of them have been destroyed in times of civil discord, and others have been altered to suit the convenience and comfort of the owner rather than please his vanity. The owners of these houses are called Parientes Mayores, and are by all their relations considered as the heads of their respective families. Some of these families were the founders of the churches, have received the tithes, and appointed the ministers to serve in them, from a time which was said to be immemorial, five centuries ago. Beyond this privilege, and the influence which their riches may give them, they possess no other, nor are they considered as superiors by any other independent although poorer farmer. The early education which the people give to their children at home is more calculated to harden their bodies than to develop their mental faculties; but at a later period they send them to colleges, where they receive the necessary instruction. The daughters, even of the richest persons, are employed in all the menial labours of the household, and pride themselves on their skill in these matters. Bowles says, that when he visited that country he imagined himself transferred to the patriarchal age; and adds, 'Whoever seeks native simplicity, health, and real happiness, will undoubtedly find these blessings in these mountains; it is in them that he will find in general a people, if not opulent, really contented, true patriots, and not servilely submitting to the powerful. Every one possesses something; and, in general, it is considered disgraceful to be a beggar.' Although things have greatly altered since Bowles's time (1780), it is not rare to find families who still preserve the simplicity of manners here described.

The climate of Biscay is in general damp and cold, but so salubrious, says Bowles, that if it were not for the diseases which the people contract from excessive eating during their festivals, physicians would be almost useless. Although they drink in proportion, it is a very rare thing to see a Biscayan drunk. [For the history, government, and language of the Biscayans, see Basque.]

Pedro el Cruel, having been expelled from Spain by his brother Enrique, sought assistance from the gallant son of Edward III. of England, known by the name of the Black Prince, and promised him, among other favours, the lordship of Biscaya, if he restored him to the throne. After the battle of Najera, in which the allied forces conquered the Castilian troops, Pedro sent his minister Ayala with the agents of the Black Prince to Bilbao, but the Biscaya refused to admit a foreign prince for their lord. Some historians say that the refusal was the effect of the secret intrigues of Pedro, a thing which his character renders not improbable.

(Miñano; *Diccionario Geográfico de la Academia*: Bowles's *Introduccion á la Historia Natural, y á la Geografia Física de España.*)

BISCAY, BAY OF, is that portion of the Atlantic Ocean which washes the northern coasts of Spain, and divides them from the western coasts of France. Its opening, which is directed to the N. W., is very wide: the two extreme points, Cape Ortegal (about 8° W. of Greenwich) and the isle of Ushant (called by the French Ouessant), at the western extremity of France, are upwards of 400 miles distant from each other. From the opening the bay gradually becomes narrower, the coast of France trending to the S.E., while that of Spain continues nearly in a due eastern direction; but even at the innermost extremity between the mouth of the Bidasoa, the boundary river between Spain and France, and that of the Sèvre Ni still upwards of 200 miles wide. A line drawn from S. Jean de Luz, situated at the western extremity of the Pyrenees, to the middle of another which unites Cape Ortegal with the isle of Ushant, would measure somewhat less than 400 miles, which is the length of the gulf.

'The shores which enclose this bay vary greatly in character. Beginning with Cape Ortegal, and continuing along the whole of the coast of Spain as far as the mouth of the Bidasoa and the western extremity of the Pyrenees, they are rocky and elevated, sometimes rising to several hundred feet, and cut by numerous short inlets, which in several places form excellent harbours. This rocky coast extends upwards of 300 miles. The shores of France present a different aspect. From the Bidasoa to the Gironde, upwards of 150 miles, they are sandy and low, lined by an uninterrupted series of sandy downs, by which numerous lakes are separated from the sea. There is not a single harbour on all this coast except those formed by the embouchures of the rivers Adour and Gironde: the Bassin d'Arcachon, which lies nearly at an equal distance from each, is hardly accessible to fishing-boats. To the north of the Gironde the shore continues to be low, but instead of being sandy it is marshy, and at no great distance from the beach a fine slightly undulating country commences. The marshy ground is in general firm and cultivated, or used as pasture; but it is in some places intersected by salt pools, from which immense quantities of salt are procured not only for the consumption of France, but also for exportation. This coast continues as far as the bay of Morbihan and the peninsula of Quiberon, about 200 miles.' The remainder of the French coast along the Bay of Biscay, about 120 miles in length, is rather high, but commonly of very moderate elevation, and only rocky in a few places. In this part there are several good harbours.

No islands nor rocks occur along the coast of Spain, nor along that of France south of the Gironde. But to the north of this river there are some considerable islands at no great distance from the shore. Such are the isles of Oleron and Ré, which form the harbours of Rochfort and La Rochelle, and those of Noirmoutier and Bouin, all of which are rather low and marshy. The rocky island of Dieu or D'Yeu lies farther off from the shore. This part of the coast is lined by several shoals, but is free from rocks. West of the bay of Quiberon the islands are smaller but more numerous, and the rocks frequent. The most considerable islands are Belle Isle and the rocky and almost inaccessible Ushant.

The rivers which run into the Bay of Biscay on the shore of Spain have a short course, originating commonly twenty or thirty miles, and perhaps never more than forty miles, from the coast, so that here the basin of this gulf extends only a short distance inland. But it is otherwise in France: the waters from more than half the surface of France find their way to this part of the ocean, and the upper course of the Loire is fully 200 miles distant from the sea to which its waters descend. Besides the Loire and its numerous tributaries, the Bay of Biscay receives the waters of the Garonne, by means of its æstuary, called the Gironde, and some rivers of less magnitude, as the Adour near Bayonne, the Charante near Rochefort, the Sèvre Niortaise, opposite the isle of Ré, the Vilaine to the east of the bay of Morbihan, and the Blavet below Orient.

The commerce carried on in the harbours of the Bay of Biscay is considerable. Spain, however, furnishes only a small portion of the exports, owing to the height of the mountains which divide its numerous and excellent harbours from the plains in the interior of the peninsula, and the difficulty and expensiveness of the transport of heavy commodities. From the inland provinces only wool is brought to the ports of Santander and Bilbao: the produce of the coast itself is not considerable, and consists chiefly of fruits. But more than half of the products of the soil of France, and nearly the same portion of its manufactures, are exported from the harbours of Bayonne, Bourdeaux, La Rochelle, Nantez, Vannes, and Orient; and great quantities of foreign merchandise are received by the same way.

The navigation of this part of the ocean would be easy and safe on account of the great width of the bay and the absence of rocks and shoals, if its waters during strong western and north-western winds were not extremely agitated, and formed into high, short, and broken waves: on this account it is nearly as much feared by navigators as the Cape of Good Hope. This effect is probably mainly produced by the peculiar form of the bay. Its wide opening allows at once an immense volume of water to be brought into it by the western winds, to which at its innermost extremity it opposes a long, regular, unbroken line of coast, running nearly parallel to the opening of the bay, and throwing back all the volume of water which is cast upon it. Such immense masses of water pushed towards the centre of the bay with great force must necessarily disturb its surface to a considerable depth. This agitation of the bay is probably sometimes increased by the current which runs along the whole of its shores. This current, like that which is called by Major Rennell the North African or Guinea Current, originates, as it seems, in the sea north-west of Capes Finisterre and Ortegal, and is commonly very sensible at both of these points, running sometimes twenty-six miles per day, at a distance of fifty miles and upwards from the shore. It continues along the northern coast of Spain to the east, then turns northward and north-westward along the shores of France, and when it arrives at the point where the Bay of Biscay and the British Channel join, it shoots across the mouth of the latter, brushing and sometimes enclosing the Scilly Islands. It then bends farther west, and approaches the coast of Ireland between Cape Carnsore and Cape Clear, whence it bends to the south-west and south, till it joins the North African current, performing a complete rotation between Spain, France, Ireland, and the Atlantic Ocean at large. This current is hardly perceptible after a long interval of moderate winds; but after hard and continual gales from the west, it is felt in considerable strength at the Scilly Islands and the southern coast of Ireland, and causes on both points considerable loss of life and property, when vessels have been carried out of their way by it, and thick weather prevents their setting themselves right by an observation. This branch of the North African current is called Rennell's Current, in honour of this indefatigable geographer. (Rennell's *Investigation of the Currents in the Atlantic Ocean.*)

BISCHWILLER, or BISCHWEILLER, a town in France, in the department of Bas Rhin (Lower Rhine), on the right or south bank of the Moder, a small feeder of the Rhine. Its distance from Paris by the road is probably about 276 miles. It is in 48° 46′ N. lat., and 7° 52′ E. long.

This town is not fortified: it has a church situated on a small elevation, at the foot of which is the castle surrounded by a moat. (Expilly.) The trade of the town is considerable. Some years since it consisted in the preparation of madder, beating hemp, founding in copper and iron, and making bricks, tiles, and pottery, clay for which, of an excellent quality, was procured in the environs. (*Encyclopédie Méthodique.*) Of late years some of these branches of manufacturing industry seem to have been superseded or eclipsed by the increase of weaving. The looms of Bischwiller now produce cloth for soldiers' clothing, linsey-woolsey, bed-ticking, and worsted gloves: woollen-yarn is spun; hemp and madder are still cultivated; and ropes, oil, and leather are made. Iron was formerly procured in the neighbourhood, but we are not aware whether the mine is now worked. Peat has been lately dug. The population in 1832 was 5927.

BISCUIT (German, *Zweibach*; Dutch, *Scheepsbeschuit*; Danish, *Skibstvebak*; Swedish, *Skeppsbrod*; French, *Biscuit*; Italian, *Biscotto*, *Galetta*; Spanish, *Bizcocho*, *Galleta*; Portuguese, *Biscoito*; Russ, *Bort*, *Ssucher*; Latin, *Panis Biscoctus Nauticus*), a kind of bread made usually in the form of flat cakes, in order to insure their being deprived of moisture in the baking: which circumstance is necessary for preserving them fit for use during the continuance of long voyages. The use of this kind of bread on land is indeed pretty general as a matter of luxury; but at sea, biscuits are an article of the first necessity, since bread in the more ordinary form in which it is used on shore would speedily become mouldy and unfit for food.

The name biscuit is evidently derived from the nature of the processes to which this kind of bread was formerly subjected. The two bakings then used are no longer found necessary, but the name, although thus rendered inappropriate, has been continued.

The same name is applied, inappropriately also, to several articles made by confectioners, such as sponge biscuits, Naples biscuits, &c., the form and composition of which it does not appear necessary to describe any further than by saying that they are sweetened with sugar, and that they are not reduced by baking to the state of dryness which has been mentioned as a necessary quality of biscuits in their ordinary form. Many other kinds of fancy biscuits are indeed made to which this quality is given, and which are sweetened and variously composed so as to gratify the palate. Our description of biscuit-making will be confined to that kind which forms a principal part of the food of seamen, and which is for that reason usually known as ship-bread or biscuit.

When intended for this use, biscuits are most commonly made of the meal of wheat from which only the coarsest bran has been separated. It is hardly possible to be too particular in the selection of meal for this purpose, since any damage to which it may have been subject, either before or after being ground, would prevent biscuits, however carefully made, from keeping sound for any length of time. The preparation of sea-biscuit is carried on as a substantive branch of business in almost every port to which vessels resort which are engaged in trading with distant countries.

The largest biscuit-manufactories are those maintained by government for supplying the navy. The scale upon which these are carried on is such as to make it of great importance to introduce into the process every simplicity compatible with the goodness of the articles, and attempts have, with this view, been made from time to time, in order to lessen the amount of labour in the establishments. It does not appear that these attempts can have been very successful, since the process now used in the great bakehouse at Deptford is identical with that employed there forty years ago, and which is as follows:

Meal and water being mixed together in proportions necessary for giving the due degree of consistency to the dough, it is kneaded in the following manner:—The dough is placed upon a wooden platform, about six feet square, fixed horizontally a few inches above the floor of the bakehouse, and against the wall. A wooden roller, or staff, five inches in diameter, and eight feet long, has one end fixed by means of a staple and eye to the wall, at a convenient distance, at the middle of that side which is against the wall, above the level of the platform, and its other end overhangs by two feet the outer edge of the platform. Having a certain play by means of the staple and eye, this roller can be made to traverse the surface of the platform, and when the dough is placed upon it, the roller is used so as to knead it by indenting upon it lines radiating in a semicircle from the staple. To perform this kneading process, a man seats himself upon the overhanging end of the roller and proceeds with a riding motion backwards and forwards through the semicircular range until the dough is sufficiently kneaded.

In this state the dough is cut by large knives into slices, which are subdivided into small lumps, each sufficient for making a biscuit. In moulding these small lumps, which is done by hand, the dough undergoes a further degree of kneading, and at length receives the form of the biscuit. The men who thus fashion the dough make two of these cakes at the same time, working with each hand independently of the other. When this part of the work is completed, the two pieces which have been simultaneously prepared are placed one on the other and handed over to another workman, by whom the two together are stamped with a toothed instrument, the use of which is to allow the equable dissipation of moisture through the holes from all parts of the biscuit during the baking. The biscuits are then separated by another workman, who places them on a particular spot of a small table standing close to the mouth of the oven, so that each biscuit can be taken up in its turn without the necessity of his looking for it, by the man who supplies the oven. The office performed by this man is that of chucking the biscuits in succession upon the peel, which is held by another man whose business is to arrange them in the oven. This peel is a flat thin board, a few inches square, which can, by means of a long handle, be slidden over the floor of the oven, so as to deposit and arrange the biscuits thereon. The greatest nicety is required on the part of the man who thus chucks the biscuits on the peel, and he could not perform this evolution with the necessary degree of precision, if he were at any time obliged to withdraw his eye from the peel in search of the biscuit. The oven is by these means supplied at the rate of seventy biscuits in one minute.

The mouth of the oven is necessarily open during the time of its being charged; the heat is therefore greater at the beginning than at the end of that operation, and besides this, the biscuits first deposited are of course a longer time exposed to heat than the rest. To remedy the irregularity that might be thus occasioned, the pieces of dough are gradually and regularly made of smaller bulk, so that the effect of the cooler oven during a shorter time is equalized.

When sufficiently baked, the biscuits are placed in the warm atmosphere of rooms (which are well ventilated), over the ovens, and remain there until perfectly dry. In this state it is found that only one hundred and two pounds of biscuits are procured from one hundred and twelve pounds of meal.

BISCUIT, in pottery, is a term used to denote porcelain as well as the commoner kinds of earthenwares at a certain stage of the manufacturing process. To render them fit for most purposes, it is necessary that earthenwares should be covered with a glaze, which is a vitreous coating, and hence arises the necessity for subjecting them twice to the action of heat in furnaces. The first baking is necessary in order to preserve the shape and texture of the pieces, since in these respects they would be altered through the absorption of the water from the glaze, which must be used in a fluid form. Neither would it be possible, for the same reason, to apply painting, or to transfer printed patterns to their surfaces in the green state, *i. e.* previously to firing. It is after this first baking, and previous to the application of the glaze and of embellishments, that these wares receive the name of biscuit, which is given from the resemblance which they bear in colour and apparent texture to ship-bread. The second firing is necessary in order to vitrify the glaze, and to bring out the metallic colours which are used for embellishing earthenwares.

The heat of the first oven must be *at least* equal to that employed for the vitrification of the glaze, and for this reason: as soon as that degree of heat to which earthenwares have been already subjected is passed, a further degree of shrinking occurs, which would occasion the glaze to crack and peel off, an effect which will not be produced by a repetition of the degree of heat that has been once applied. It is a property of clay to contract when subjected to any degree of heat greater than it has previously borne but short of the point of fusion, and to continue at that same state of contraction at every other temperature which is not above the degree of heat to which it has once been subjected, and by which its actual state of contraction has been produced.

Earthenware in the state of biscuit is permeable to water, which however it imbibes without undergoing any alteration of texture. This quality fits it for being used in the cooling of fluids, which effect is produced through the rapid evaporation from the outer surface. (Lardner's *Cabinet Cyclopædia*, vol. xxvi.)

BISHAREEN is the common name of several tribes which inhabit the mountain desert between the valley of the Nile and the Red Sea. The tribes comprised under this name are masters of the desert lying between the Wady Naby (about 21° N. lat.), to the mouth of the Atbara or Tacazze (about 18° N. lat.): but they are also found to the north of Wady Naby, where they are mixed with the Ababde tribes, to whom the country north of Wady Naby is considered to belong. To the south some of the Bishareen tribes are met with as far as Massuah or Massowa (16° N. lat.) on the Red Sea, and here they are mixed with their southern neighbours, the Hadendoa.

In their manner of life they are Beduins, though evidently not of Arabian origin. In winter they pasture their camels and sheep on the mountains near the Red Sea, where the rain produces plenty of herbage in the beds of the winter torrents; but in summer, when the grass is dried up in the desert, they are obliged to descend to the Nile to feed their cattle on the herbage along the banks of the streams.

They live entirely upon milk and flesh, much of which they eat raw. A few of them occasionally visit Derr or Assouan with senna, sheep, and ostrich-feathers; the ostrich is common in their mountains, and their senna of the best kind. In exchange they take shirts and dhurra, the grains of which they swallow raw as a dainty, and never make it into bread.

Several of the Bishareen, though Beduins, do not neglect agriculture. They repair to the banks of the Atbara immediately after the inundation to sow dhurra and kidney-beans, and remain there till the harvest is got in, when they return to the mountains.

They are a good-looking race of people, resembling the Ababde. Their women are rather handsome, of a dark-brown complexion, with beautiful eyes and fine teeth; their persons are slender and elegant; they mix in company with strangers, and are reported to be of very depraved habits. The dress of both sexes consists only of a dammour shirt.

Their encampments consist of several long irregular rows of tents, formed of mats made of the leaves of the doum-tree. As the Nubian sheep and goats do not furnish th inhabitants with the necessary materials for tent-coverings of wool or goats'-hair, like the eastern Beduins, their place is supplied by mats.

The Bishareen are constantly armed. Their youths make plundering excursions as far as Dongola, and along the route to Sennaar, mounted upon camels of a breed superior to any other that exists between the shores of the Mediterranean and Abyssinia. They fear none but the Ababde, who know their pasturing places in the mountains, and often surprise their encampments. They are addicted to drunkenness and pilfering, and are described as treacherous, cruel, avaricious, and revengeful. They are all Mussulmans, but they observe none of the rites prescribed by the Koran. Though kind, hospitable, and honest towards each other, they shew none of these virtues towards strangers; and their want of hospitality is adduced as a proof that they are not of Arabian origin, which is likewise evident from their language. Scarcely any of them understand the Arabic language, except those who visit the neighbouring trading places. Towards the frontier of Abyssinia they understand the Abyssinians, who however are said to have greater difficulty in understanding the Bishareen. Their languages are probably derived from the same source, like many others of the numerous dialects which prevail towards the northern frontier of Abyssinia. (Burckhardt's *Travels in Nubia.*)

BISHOP, the name of that superior order of pastors or ministers in the Christian church who exercise superintendency over the ordinary pastors within a certain district, called their see or diocese, and to whom also belongs the performance of those higher duties of Christian pastors, ordination, consecration (or dedication to religious purposes) of persons or places, and finally, excommunication.

The word itself is corrupted Greek. Ἐπίσκοπος (*episcopos*) became *episcopus* when the Latins adopted it. They introduced it among the Saxons, with whom, by losing something both at the beginning and the end, it became *piscop*, or, as written in Anglo-Saxon characters, Biscop. This is the modern *bishop*, in which it is probable that the change in the orthography (though small) is greater than in the enunciation. Other modern languages retain in like manner the Greek term slightly modified according to the peculiar genius of each, as the Italian, *vescovo*; Spanish, *obispo*; and French, *évêque*; as well as the German, *bischof*; Dutch, *bisschop*; and Swedish, *biskop*.

The word *episcopus* literally signifies 'an inspector or superintendent:' and the etymological sense expresses even now much of the actual sense of the word. The peculiar character of the bishop's office might be expressed in one word—superintendency. The bishop is the overseer, overlooker, superintendent in the Christian Church, and an exalted station is allotted to him corresponding to the important duties which belong to his office. It was not, however, a term which was invented purposely to describe the new officer which Christianity introduced into the social system. The term existed before both among the Greeks and Latins to designate certain civil officers to whom belonged some species of superintendency. (See Harpocrat. or Suidas in voc. ἐπίσκοπος.) Cicero (*ad Att.*, lib. vii. ep. 11) speaks of himself as appointed an ἐπίσκοπος in Campana.

It has long been a great question in the Christian Church what kind of superintendency it was that originally belonged to the bishop. This question, as to whether it was originally a superintendency of pastors or of people, may be briefly stated thus:—Those who maintain that it was a superintendency of pastors challenge for bishops that they are an order of ministers in the Christian Church distinct from he order of presbyters, and standing in the same high elation to them that the apostles did to the ordinary ministers in the church; that, in short, they are the successors and representatives of the apostles, and receive at their consecration certain spiritual graces by devolution and transmission from them, which belong not to the common presbyters. This is the view taken of the original institution and character of the bishop in the Catholic Church, in the English Protestant Church, and we believe in all churches which are framed on an episcopal constitution. Episcopacy is thus regarded as of divine institution, inasmuch as it is the appointment of Jesus Christ and the apostles, acting in ffairs of the church under a divine direction. There are, on the other hand, many persons who contend that superintendency of the bishop was originally in no respect different from the superintendency exercised by presbyters as pastors of particular churches. They maintain that, if the question is referred to scripture, we there find that bishop and presbyter are used indifferently to indicate the same persons or class of persons; and that there is no trace in the scriptures of two distinct orders of pastors; and that if the reference is made to Christian antiquity we find no trace of such a distinction till about 200 years after the time of the apostles. The account which they give of the rise of the distinction which afterwards existed between bishops and mere presbyters is briefly this.

When in the ecclesiastical writers of the first three centuries we read of the bishops, as of Antioch, Ephesus, Carthage, Rome, and the like, we are to understand the presbyters who were the pastors of the Christian churches in those cities. While the Christians were few in each city, one pastor would be sufficient to discharge every pastoral duty among them; but when the number increased, or when the pastor became enfeebled, assistance would be required by him, and thus other presbyters would be introduced into the city and church of the pastor, forming a kind of council around him. Again, to account for the origin of dioceses or rural districts which were under the superintendency of the pastors, it was argued that it was the cities which first received Christianity, and that the people in the country places remained for the most part heathens or pagans (so called from *pagus*, a country village) after the cities were Christianized; but that nevertheless efforts were constantly being made to introduce Christian truth into the villages around tho chief cities, and that whenever favourable opportunities were presented, the chief pastor of the city encouraged the erection of a church, and appointed some presbyter either to reside constantly in or near to it, or to visit it when his services were required, though residing in the city, and there assisting the chief pastor in his ministrations. The extent of country which thus formed a diocese of the chief pastor would depend, it is supposed, on the civil distributions of the period; that is, the dioceses of the bishops of Smyrna, or any other antient city, would be the country of which the inhabitants were accustomed to look to the city for the administration of justice, or in general to regard it as the seat of that temporal authority to which they were immediately subject.

All this is represented as having gone on without any infringement on the rights of the chief pastor, of whom there was a regular series. Lists of them are preserved in many of the more antient churches, ascending, on what may be regarded sufficient historical testimony, and with few breaks in the continuity, even into the second and first centuries. Bishops are however found in churches for which this high antiquity cannot be claimed. In these cases they are supposed to be either in countries which did not fully receive Christianity in the very earliest times, or that the bishops or chief pastors delegated a portion of that superior authority which they possessed over the other presbyters to the presbyter settled in one of the churches which was originally subordinate. This is supposed to have been the origin of the distinction among the chief pastors of bishops and archbishops, there being still a slight reservation of superintendency and authority in the original over the newly created chief pastors.

If this view of the origin of the episcopal character and office be correct, it will follow that originally there was no essential difference between the bishop and the presbyter, and also that the duties which belong to the pastor of a Christian congregation were performed by the bishop. But when the increase of the number of Christians rendered assistants necessary, and this became a permanent institution, then the chief pastor would divest himself of those simpler and easier duties, which occasioned nevertheless a great consumption of time, as a matter at once and of necessity. Having to think and to consult for other congregations beside that which was peculiarly his own, and to attend generally to schemes for the protection or extension of Christianity, he would have little time remaining for catechizing, preaching, baptizing, or other ordinary duties: and especially when it was added that he had to attend councils, and even was called to assist and advise the temporal governors in the civil and ordinary affairs of state. When Christianity, instead of being persecuted, was countenanced and encouraged by the temporal authorities, it was soon perceived that the bishop would be a very important auxiliary to the temporal authorities; while in ages when few besides ecclesiastical persons had any share of learning, or what we call mental cultivation, it is manifest that the high offices of state, for the performance of the duties of which much discernment and much information were required, must necessarily be filled by ecclesiastics, who might be expected, as we know to have been the case, to unite spiritual pre-eminence with their high political offices. The Lord High Chancellor of England was always an ecclesiastic, and generally a bishop, to the time of Sir Thomas More, in the reign of Henry VIII.

The functions which belong to the bishop are in all countries nearly the same. We shall speak of them as they exist in the English Church. 1. Confirmation, when children on the threshold of maturity ratify or confirm the engagement entered into by their sponsors at baptism, which is done in the presence of a bishop, who may be understood in this ceremony to recognise or receive into the Christian church the persons born within his diocese. 2. Ordination, or the appointment of persons deemed by him properly qualified, to the office of deacon in the church, and afterwards of presbyter or priest. 3. Consecration of presbyters when they are appointed to the office of bishop. 4. Dedication, or consecration of edifices erected for the performance of Christian services or of ground set apart for religious purposes, as especially for the burial of the dead. 5. Administration of the effects of persons deceased, of which the bishop is the proper guardian, until some person has proved before him a right to the distribution of those effects either as the next heir or by virtue of the will of the deceased. 6. Adjudication in questions respecting matrimony and divorce. 7. Institution or collation to vacant churches in his diocese. 8. Superintendence of the conduct of the several pastors in his diocese, in respect of morals, of residence, and of the frequency and proper performance of the public service the church. And, 9, Excommunication; and, in the case of ministers, deprivation and degradation.

These are the most material of the functions which have been retained by the Christian bishops, or, if we adopt the theory of apostolic succession, which have from the beginning been exercised by them. To these it remains to be added, that in England they are the medium of communication between the king and the people in respect of all affairs connected with religion; and that they are an important constituent part of that great council of the realm which is called parliament.

Whatever kind of moot, assembly, or council for the advice of the king there was in the earliest times of the English monarchy, the bishops were chief persons in it. The charters of the early Norman kings usually run in the form that they are granted by the assent and advice of the bishops as well as others; and when the antient great council became moulded into the form of the modern parliament, the bishops were seated, as we now see them, in the Upper House. It is argued that they sit as barons [see BARON], but the writ of summons runs to them as bishops of such a place, without any reference to the temporal baronies held by them. Down to the period of the Reformation they were far from being the only ecclesiastical persons who had seats among the hereditary nobility of the land, many abbots and priors having been summoned also, till the houses over which they presided were dissolved, and their office thus extinguished. Henry VIII. created at that time six new bishoprics, and gave the bishops placed in them seats in the same assembly. But before the nation had adjusted itself in its new position, there was a powerful party raised in the country, who maintained that a government of the church by bishops was not accordant to the primitive practice, and who sought to bring back the administration of ecclesiastical affairs to the state in which there was an equality among all ministers, and where the authority was vested in synods and assemblies. Churches upon this model had been formed at Geneva and in Scotland: and when this party became predominant in the parliament of 1642, a bill was passed for removing the bishops from their seats, to which the king gave a reluctant and forced assent. It was soon followed by an entire dissolution of the Episcopal Church. At the Restoration this act was repealed, or declared invalid, and the English bishops have ever since had seats in the House of Lords. They form the Lords Spiritual, and constitute one of the three estates of the realm, the Lords Temporal and the Commons (the *tiers état*) being the other two. Out of this has arisen the question, now laid at rest, whether a bill has passed the House in a constitutional manner, if it has happened that no Lord Spiritual was present at any of its stages. When the House becomes a court for the trial of a peer charged with a capital offence, the bishops withdraw, it being held unsuitable to the character of ministers of mercy and peace to intermeddle in affairs of blood.

For the execution of many of the duties belonging to their high function they have officers, as chancellors, judges, and officials, who hold courts in the bishop's name.

The election of bishops is supposed by those who regard the order as not distinguished originally from the common presbyter, to have been in the people who constituted the Christian church in the city to which they were called; afterwards, when the number of Christians was greatly increased, and there were numerous assistant presbyters, in the presbyters and some of the laity conjointly. But after a time the presbyters only seem to have possessed the right, and the bishop was elected by them assembled in chapter. The nomination of such an important officer was however an object of great importance to the temporal sovereigns, and they so far interfered that at length they virtually obtained the nomination. In England there is still the shadow of an election by the chapters in the cathedrals. When a bishop dies the event is certified to the king by the chapter. The king writes to the chapter that they proceed to elect a successor. This letter is called the *congé d'élire*. The king, however, transmits to them at the same time the name of some person whom he expects them to elect. If within a short time they do not proceed to the election, the king may nominate by his own authority; if they elect any other than the person named in the king's writ, they incur the severe penalties of a præmunire, which includes forfeiture of goods, outlawry, and other evils. The bishop thus elected is confirmed in his new office under a royal commission, when he takes the oaths of allegiance, supremacy, canonical obedience, and against simony. He is next installed, and finally consecrated, which is performed by the archbishop or some other bishop named in a commission for the purpose, assisted by two other bishops. No person can be elected a bishop who is under thirty years of age.

Most of the bishops in England are amply endowed. Their churches, which are called *cathedrals*, (from *cathedra*, a seat of dignity,) are noble and splendid edifices, the unimpeachable witnesses remaining among us of the wealth, the splendour, and the architectural skill of the ecclesiastics of England in the middle ages. The cathedral of the Bishop of London is the only modern edifice.

For other information on this subject, see ARCHBISHOP and ARCHDEACON.

Bishops in partibus.—This is an elliptical phrase, and is to be supplied with the word *Infidelium*. These are bishops who have no actual see, but who are consecrated they had, under the fiction that they are bishops in succession to those who were the actual bishops in cities where Christianity is extinct. Syria, Asia Minor, Greece, and the northern coast of Africa, present many of these extinct sees, some of them the most antient and most interesting in the history of Christianity. When a Christian missionary is to be sent forth in the character of a bishop into a country imperfectly Christianized, and where the converts are not brought into any regular church order, the pope does not consecrate the missionary as the bishop of that country in which his services are required, but as the bishop of one of the extinct sees, who is supposed to have left his diocese and to be travelling in those parts. So, when England had broken off from the Catholic Church, and yet continued its own unbroken series of bishops in the recognized En sees, it was, for Catholic ecclesiastical affairs, divided into districts, over each of which a bishop has been pl is a *bishop in partibus*. Thus, Dr. Baines, the actual bishop of the western district, is the bishop of Siga, an extinct African see. When, in the time of King Charles I., Dr. Richard Smith was sent by the pope into England in the character of bishop, he came as bishop of Chalcedon.

The English church has not adopted this plan; but the bishops who have been sent to Nova Scotia, to Quebec, and to the East and West Indies, have been named from the countries placed under their spiritual superintendency, or from the city which contains their residence and the cathedral church.

Suffragan bishops.—In England, every bishop is, in certain views of his character and position, regarded as a suffragan of the archbishop in whose province he is. But the suffragan bishop is rather to be understood as a bishop *in partibus*, who was admitted by the English bishops before the Reformation to assist them in the performance of the duties of their office. When a bishop filled some high office of state, the assistance of a suffragan was almost essential, and was probably usually conceded by the pope, to whom such matters belonged, when asked for. A catalogue of persons who have been suffragan bishops in England was made by Wharton, a great ecclesiastical antiquary, and is printed in an appendix to a Dissertation on bishops *in partibus*, published in 1784 by another distinguished church-antiquary, Dr. Samuel Pegge.

At the Reformation, provision was made for a body of suffragans. The act 26 Henry VIII. c. 14. is expressly on this subject. It authorises each archbishop and bishop to name a suffragan, which is to be done in this manner: he is to present the names of two clerks to the king, one of whom the king is to select. He was no longer to be named from some extinct see, but from some town within the realm. Six and twenty places are named as the seats (nominally) of the suffragan bishops. They were these which follow:

Thetford,
Ipswich,
Colchester,
Dover,
Guilford,
Southampton,
Taunton,
Shaftesbury,
Molton,
Marlborough,
Bedford,
Leicester,
Gloucester,
Shrewsbury,
Bristol,
Penrith,
Bridgewater,
Nottingham,
Grantham,
Hull,
Huntingdon,
Cambridge,
Pereth,
Berwick,
St. Germains,
and the Isle of Wight.

This was before the establishment of the six new bishopries.

Very few persons were nominated suffragan bishops under this act. One, whose name was Robert Pursglove, who had been an abbot, and who was a friend to education, was suffragan bishop of Hull. He died in 1579, and lies interred in the church of Tideswell in Derbyshire, under a sumptuous tomb, on which is his effigy in the episcopal costume with a long rhyming inscription presenting an account, curious as being contemporary, of the places at which he received his education, and the ecclesiastical offices which in succession he filled.

Boy-bishop.—In the cathedral and other greater churches, it was usual on St. Nicholas-day to elect a child, usually one of the children of the choir, bishop, and to invest him with the robes and other insignia of the episcopal office; and he continued from that day (Dec. 6), to the feast of the Holy Innocents (Dec. 28), to practise a kind of mimicry of the ceremonies in which the bishop usually officiated, more for the amusement than to the edification of the people. The custom, strange as it was, existed in the churches on the continent as well as in England. It may be traced to a remote period. It was countenanced by the great ecclesiastics themselves, and in their foundation they sometimes even made provision for these ceremonies. This was the case with the archbishop of York in the reign of Henry VII., when he founded his college at Rotherham. Little can be said in favour of such exhibitions, but that they served to abate the dreariness of mid-winter. Much may be found collected on this subject in Ellis's edition of Brand's *Popular Antiquities*, vol. i. pp. 328-336. The custom was finally suppressed by a proclamation of Henry VIII. in 1542.

BISHOPRIC is a term equivalent to diocese or see, denoting the whole district through which the bishop's superintendency extends. The final syllable is the Anglo-Saxon rice, *region*, which entered in like manner into the composition of one or two other words.

In England there are two archbishopries, and twenty bishopries: in Wales, four bishopries: the Isle of Man forms also a bishopric, but the bishop has no seat in the English parliament.

The basis of the present diocesan distribution of England was laid in the times of the Saxon Heptarchy. At the Conquest there were two archbishopries and thirteen bishopries, viz.:

Canterbury,
York,
London,
Winchester,
Chichester,
Rochester,
Salisbury,
Bath and Wells,
Exeter,
Worcester,
Hereford,
Coventry and Lichfield,
Lincoln,
Norwich,
Durham.

The first innovation on this arrangement was made by King Henry I., who, to gratify the abbot of the antient Saxon foundation at Ely, and to free him from the superintendence of the bishop of Lincoln, in whose diocese he was, erected Ely into a bishopric, the church of the monastery being made the cathedral. He assigned to it as its diocese the county of Cambridge and some portion of Norfolk, perhaps as much as had formerly been comprehended within Mercia, for we have no better guide to the exact limits of the antient Saxon kingdoms than the limitations of the antient dioceses. This was effected in 1109.

The second was in 1133, near the end of the reign of Henry I., when the see of Carlisle was founded. The diocese consists of portions of the counties of Cumberland and Westmoreland, perhaps not before comprehended within any English diocese.

No other change took place till 1541, when King Henry VIII. erected six new bishopries, facilities for doing so being afforded by the dissolution of the monastic establishments, which placed at the king's disposal large and splendid churches, and great estates, out of which to make a provision for the support of the bishops. These were, 1. Oxford, having for its diocese the county of Oxford, which had previously been included within the diocese of Lincoln; 2. Peterborough: this diocese was also taken out of that of Lincoln, and comprises the county of Northampton and the greater portion of Rutland. 3. Gloucester, having for its diocese the county of Gloucester, which had been previously in the diocese of Worcester. 4. Bristol, to which the city of Bristol, and the whole county of Dorset heretofore belonging to the diocese of Salisbury, were assigned. 5. Chester: to this a very large tract was assigned, namely, the county of Chester, heretofore part of the diocese of Lichfield and Coventry, and the whole county of Lancaster, part of Cumberland, and the archdeaconry of Richmond, all of which were before in the diocese of York; and 6. Westminster, the county of Middlesex, which before had belonged to the diocese of London, being assigned to it as its diocese. This last bishopric however soon fell. In about nine years, Thirlby, the first and only bishop, was translated to the see of Norwich, and the county of Middlesex was restored to the diocese of London.

Since the year 1541, no change has taken place in the diocesal distribution of England. There was at first no proportion among the dioceses; some, as those of York and Lincoln, being of vast extent, and others, as Hereford, Rochester and Canterbury, small. The change which has taken place in the population of different parts of England has heightened the irregularity in respect of the burthen of these sees. The revenues are not in any degree proportionate to the extent or population in the diocese, as they consist for the most part of lands settled upon the sees, often in times long before the Conquest, the revenues from which vary greatly, according as the lands have lain in places toward which the tide of population has been directed, or the contrary.

No change appears to have taken place in the distribution of Wales into four bishoprics; those of Bangor and St. Asaph in North Wales, and of St. David's and Llandaff in South Wales.

From the *Report of the Commissioners appointed by his Majesty to inquire into the Ecclesiastical Revenues of England and Wales*, published in 1835, we abstract the following return of the revenues of the English sees. The bishoprics are arranged under the archbishoprics to which they respectively belong. For the number of beneficies, population, &c., of each see, see BENEFICE.

	Net Income.		Net Income.
CANTERBURY	£19,182	Lincoln	£4,542
London	13,929	Llandaff	924
Winchester	11,151	Norwich	5,395
St. Asaph	6,301	Oxford	2,648
Bangor	4,464	Peterborough	3,103
Bath and Wells	5,946	Rochester	1,459
Bristol	2,351	Salisbury	3,939
Chichester	4,229	Worcester	6,569
St. David's	1,897		
Ely	11,105	YORK	12,629
Exeter	2,713	Durham	19,066
Gloucester	2,282	Carlisle	2,213
Hereford	2,516	Chester	3,261
Lichfield and Coventry	3,923	Sodor and Man	2,555

The bishops of London, Durham, and Winchester, rank next to the archbishops: the others rank according to priority of consecration.

While the church of Scotland was episcopal in its constitution it had two archbishoprics, St. Andrew's and Glasgow, and eleven bishoprics, to which, as late as 1633, a twelfth was added, the bishopric of Edinburgh. In the other thirteen sees there is a long and pretty complete catalogue of bishops, running up to the ninth, tenth, eleventh, or twelfth centuries. The eleven antient bishoprics were those of

Aberdeen,
Argyle,
Brechin,
Caithness,
Dumblane,
Dunkeld,
Galloway,
Moray,
Orkney,
Ross,

and the Isles, or Sodor, a see which was formerly within the superintendency of the bishop of Man.

At the Revolution, the Presbyterian church of Scotland was acknowledged as the national church: but there is still an episcopal church in Scotland, the members of which are there in the character of dissenters.

Before the late changes in the Irish establishment, there were four archbishoprics and eighteen bishoprics. Many of the latter had been formed by the union of sees, which had been effected at different epochs. At the time of the late act, by which many were to be extinguished on the death of the existing bishop, there were in the province of

Armagh—Meath and Clonmacnoise, Clogher, Down and Connor, Kilmore, Dromore, Raphoe, and Derry.

Dublin—Kildare, Ossory, and Ferns and Leighlin.

Cashel—Limerick, Cork and Ross, Waterford and Lismore, Cloyne, and Killaloe and Kilfenora.

Tuam—Elphin, Clonfert and Kilmacduagh, and Killala and Achonry.

Of these, by the act of 3 and 4 Will. IV. c. 37, the archiepiscopal diocese of Tuam was to be united to that of Armagh, and that of Cashel to Dublin; but the two suppressed archbishoprics are in future to be bishoprics. The diocese of Dromore is to be united to that of Down and Connor; that of Raphoe to Derry; Clogher to Armagh: Elphin to Kilmore; Killala and Achonry to Tuam and Ardagh; Clonfert and Kilmacduagh to Killaloe and Kilfenora; Kildare to Dublin and Glandelagh; Leighlin and Ferns to Ossory; Waterford and Lismore to Cashel and Emly; Cork and Ross to Cloyne. The diocese of Meath and Clanmacnoise, and that of Limerick, remain unaltered. The archbishoprics are reduced to two, and the bishoprics to ten.

One archbishop and three bishops represent the Irish Church in the House of Lords. They are changed every session according to a system of rotation by which all sit in turn.

The bishopric of Man is traced to Germanne, one of the companions of St. Patrick, in the fifth century; but there are many breaches in the series of bishops from that time to the present. Sodor, which is supposed to be a Danish term for the western Isles of Scotland, was under the same bishop till the reign of Richard II., when the Isle of Man having fallen under the English sovereignty, the Islands withdrew themselves, and had a bishop of their own. The nomination of the bishop was in the house of Stanley, earl of Derby, from whom it passed by an heiress to the Murrays, dukes of Athol. This bishopric was declared by an act of 33 Henry VIII. to be in the province of York.

The Isle of Wight is part of the diocese of Winchester: and the Isles of Jersey and Guernsey, with the small islands adjacent, are in the diocese of London.

In the colonies, where there are churches dependent on the English episcopal church, bishops have been consecrated and appointed to the several places following: namely, Nova-Scotia, Quebec, Jamaica, Barbadoes, Calcutta.

The pope is the bishop of the Christian church of Rome, and claims to be the successor of St. Peter, of whom it is alleged that he was the first bishop of that church, and that to him there was a peculiar authority assigned, not only over all the inferior pastors or ministers of the church, but over the rest of the apostles, indicated to him by the delivery of the keys. The whole of this, the foundation of that superiority which the bishop of Rome has claimed over all other bishops, has furnished matter of endless controversy; and it does not appear that there is any sufficient historical authority for the allegation that St. Peter did act for any permanency as the bishop of that church, or for the six or seven persons named as successively bishops of that church after him. It seems more probable that the superiority enjoyed by that bishop at a very early period over other bishops (which was not universally acknowledged, and strenuously opposed by our own Welsh bishops) resulted from his position in the chief city of the world, and the opportunities which he enjoyed of constant access to those in whom the chief temporal authority was vested.

Both the eastern and western churches were framed in an episcopal form and order. The sees were very numerous; far too many to be introduced within the limits to which we must confine ourselves.

BISHOP'S CASTLE, a borough and market-town, with a separate jurisdiction, but locally situated in the hundred of Purslow, county of Salop; 144 miles N.W. by W. from London, and 19 miles S.W. from Shrewsbury. The local limits of the borough are extensive, comprising a circuit of about fifteen miles, and being from three to four miles in width in all directions. It stands on the declivity of a hill near a stream of the river Clun, and is irregularly built. The mass of the houses have rather a mean appearance, being of unhewn stone, with thatched roofs;

but there are several very good houses in detached situations. The place derives its name from a castle belonging to the Bishops of Hereford, which formerly stood here, and was generally their country residence. It has long been demolished, but its site may still be traced, and part of it, probably of the keep, now forms the bowling-green of an inn. The town is an old corporation, and received from Queen Elizabeth the privilege of sending two members to parliament, which it continued to do until it was disfranchised by the Reform Bill. The town has had three charters, the first from Queen Elizabeth, the second from James I., and the last from James II. These charters vest the local government in a bailiff, a recorder, and fifteen capital burgesses. The borough magistrates hold a quarter session, the business of which is very trifling; the bailiff is also empowered to hold petty sessions whenever occasions require; and there is also a civil court of record, which has cognizance of all suits where the sum in dispute does not exceed 20*l.* The town-hall, a plain brick building, erected in 1750, includes a prison for criminals, and another for debtors. The market-house is a handsome edifice of stone. The market is held on Friday, and the fairs on February 13th, Friday before Good Friday, Friday after the 1st of May, July 5th, September 9th, November 13th. All these are cattle-fairs except that in May, which is the pleasure fair, and that in July, which is a wool-fair. The market and the fairs are much resorted to by the Welsh, which is a great benefit to the place. The parish contained 388 houses in 1831, and the population was then 2007, of whom 1124 were females. The population of the borough alone was 1729. The church, dedicated to St. John the Baptist, is a fine old structure, with a square embattled tower, surmounted by pinnacles. It is chiefly in the Norman style; but having been burnt in the parliamentary war, it was afterwards restored without sufficient attention being paid to the original character of the architecture. It has accommodation for 1000 persons. The living is a vicarage in the diocese of Hereford, with an annual net income of 350*l.*

The free school at Bishop's Castle was founded by Mrs. Mary Morris, in grateful remembrance of her first husband, John Wright, Esq. By her will, dated in 1785, she directed that 1000*l.* should be paid to the bishop, the interest of which was to be applied to the education of fifty children, half of them boys, to be instructed in reading, writing, and arithmetic; and the other half girls, to be instructed in reading, writing and plain sewing. She also gave 200*l.* for the building of a school. The bishop is visitor and trustee of the school, the property of which now consists of 1598*l.* 13*s.* three per cent. consols. The interest amounts to 47*l.* 19*s.* 2*d.*, of which 47*l.* is paid to the schoolmaster. There are about thirty girls instructed free on this foundation; the schoolmaster's wife instructs them in needlework at the schoolhouse, in the afternoon, and the master teaches them reading, writing, and accounts with the boys at the market house in the morning. There are fifty boys in the school, of whom twenty-five are taught free on the foundation; the rest are pay scholars, with the exception of ten, who are taught by an annual donation of 21*l.* from Lord Powis's family and the members for the town. The master takes all children who apply, and places such as he thinks proper on the list of free scholars. There is no other National or Sunday school in connexion with the Established Church, but the several dissenting congregations have schools in connexion with their chapels.

(Camden's *Britannia*; *Magna Britannia*; *Beauties of England and Wales*; *Twenty-fourth Report on Charities*; *Reports on Municipal Corporations*.)

BISHOP'S STORTFORD, a parish and market-town in the hundred of Braughin, county of Hertford, twelve miles E.N.E. from Hertford, and twenty-six miles N.N.E. from London. The place derives its name of Stortford from its situation upon the river Stort, and the prefix, from its having been, even from Saxon times, the property of the bishops of London. Domesday Book records that the Conqueror gave the town and castle of Stortford to Maurice, bishop of London; if so, as Salmon remarks, he gave no more than he had previously taken, for the same document mentions that William, the last bishop but one before Maurice, had purchased this manor of the lady Eddeva. The same authority states that the property was then worth eight pounds per annum, but had been worth ten in the time of the Confessor. The small castle, which stood on an artificial hill, is said by Chauncey to have been built by William the Conqueror to protect the trade of the town, and to keep it in subjection at the same time. Salmon, however, thinks that it existed before the Conquest, and was merely strengthened and repaired by this king. It was called Waytemore Castle, and stood in a piece of land surrounded by the Stort. It would seem that the site had at a previous period been occupied by a Roman camp, as some Roman coins of the lower empire have been found in the castle gardens. It appears to have been regarded as a fortress of some consequence in the time of King Stephen, and the empress Maud endeavoured, but without effect, to prevail upon the bishop to exchange it with her for other lands. King John caused the castle to be demolished in revenge for the active part which Bishop William de St. Maria took against him in his difference with the pope, this prelate being one of the three who placed an interdict upon the kingdom. When the pope triumphed over the king, the latter found it necessary to give the bishop his own manor of Guildford, in Surrey, to atone for the demolition of this castle. 'The castle hill,' says Salmon, 'stands yet for a monument of King John's power and revenge; and the bishop's lands remain a monument of the pope's entire victory over him.' It seems that some of the outbuildings and other parts of the castle were standing in the seventeenth century, and indeed some very small remains are still existing. The bishops continued to appoint a *custos*, or keeper, of the 'Castle and Gaol' of Stortford till the time of James I. The last who made use of the prison was Bishop Bonner, in the time of Queen Mary, who kept convicted Protestants in its deep and dark dungeon. Quit-rents for castle guard are still paid to the see of London from several manors adjacent to Bishop's Stortford.

We are disposed to concur with Salmon in considering that the town more probably arose from the castle, than the castle from the town, as Chauncey supposes. Here, as in many other cases, the castle seems to have formed an inducement for people to settle in the neighbourhood, as it offered a place of safety to which they could retire with their moveables in time of danger. It must have became a place of some consequence at the time that King John demolished the castle, for that king, in order to make it independent of the bishop, erected the town into a borough, with power to the commonalty to elect their own officers for the local government, and to return two members to parliament. This new constitution held until the 14th of Edward III., when the bishop was restored to his usual privileges in the place, as he had before been to his lands, and the town was thenceforward relieved from the necessity of making returns to parliament. The town is now within the jurisdiction of the county magistrates, who hold a petty session here once a fortnight.

Bishop's Stortford is built chiefly on the western side of the Stort, where it extends up the slope of a hill from the river. It consists of four principal streets, or properly two lines of street, in the form of a cross. There are some good inns, and many houses of the better class. The church, dedicated to St. Michael, stands upon elevated ground, 'as,' says Salmon, 'those dedicated to that Saint generally do,' and consists of a nave, chancel, and aisles, with a fine lofty tower at the west end. Chauncey was inclined to think it must be a church of Saxon erection, because the figures of King Athelstan and Edward the Confessor were in the windows about thirty years before his time; but later inquirers acquiesce in the determination of Salmon, who says the painted glass may have been taken from some earlier structure, but that the church itself has no appearance of being older than the time of Henry VI. The church was partly rebuilt in 1820, and now accommodates 2000 persons. The living is a vicarage in the diocese of London in the gift of the precentor of St Paul's, and has an annual net income of 419*l.*

A fresh impulse was given to the prosperity of Bishop's Stortford in the last century, by means of a canal which was completed in 1769. The surrounding district being fertile in corn, the trade of the place is chiefly in malt and other grain, considerable quantities of which are sent by the river or by the canal, the banks of which are furnished with convenient wharfs and quays. This trade, with a silk mill which has been established here, affords the principal employment to those who are not immediately engaged in supplying the wants of the other inhabitants. The market is held on Thursday, and there are three annual fairs, respectively held on Holy Thursday, Thursday after Trinity Sunday, and the 10th of October. A very superior market-house was erected in 1828 by means of funds raised in shares of 100*l.* each. It stands at the point where the two principal lines of street intersect each other. Its front is in the Ionic style, and it has a semicircular area with a colonnade supported by iron pillars. Besides the parts appropriated to the common traffic there is a large hall used as a corn-exchange, over which is an assembly-room, a coffee-room, and a chamber for the magistrates. The parish, which comprehends 3080 acres, contained 803 houses in 1831, when the population was 3958, of whom 2068 were females.

The town contains a public library and several book societies. There is a National School, supported by voluntary contributions, in which 200 boys and 100 girls receive instruction. There was formerly a free grammar-school in the place, the history of which is very obscure. Chauncey mentions that in 1579 a Mrs. Margaret Deane, of London, left 5*l.* per annum in fee towards the erection of a free school. He says nothing more about this establishment until, further on in his list of benefactors to the town, he says, 'Among these benefactors I may well mention my honoured master Mr. Thomas Leigh, who raised a fair library for the use of the school in the town, from whence I was sent to the University of Cambridge: it was an excellent nursery that supplied both universities with great numbers of gentlemen who proved eminent in divinity, law, and physick, and some in matters of state. He obliged divers of those gentlemen to present books to the school at their departure, wherein their names are recorded and remain to posterity.' Sir Henry Chauncey wrote in 1700, and was then advanced in years. Salmon, who wrote twenty-eight years later, states that when Dr. Tooke became master of the school, about twenty years previously, 'its reputation was then in ruins;' but he bestirred himself to restore its efficiency, and succeeded. He got the gentry of Hertfordshire and Essex, and those who had been educated at the school, to contribute their pecuniary aid. A new school-house was erected in the High Street; it was a square structure supported upon arches, and contained three rooms, that in front was the grammar-school, and as large as both the others, of which one was the library and the other a writing-school. The market-place and shops were under the arches. 'Dr. Tooke,' says Salmon, 'raised it to a great degree of fame, as the living numbers of gentlemen sent by him to his own and other colleges attest, and considerably increased the trade of the town by such a beneficial concourse.' The following is the amount of the information which Carlisle gives concerning the fate of this establishment. 'The grammar-school of Bishop's Stortford no longer exists . the whole establishment, together with the school-house, is in ruins. The library, which is considered a scarce and valuable collection of books, is deposited at the vicarage, but they also are going to decay.' (Chauncey's *Historical Antiquities of Hertfordshire:* Salmon's *History of Hertfordshire;* Gough's *Camden's Britannia;* Carlisle's *Endowed Grammar Schools; Beauties of England and Wales,* &c.)

BISHOP'S WALTHAM, a parish and market-town in the lower half of the hundred of the same name, which lies in the Portsdown division of the county of Southampton; sixty-two miles S.W. by W. from London, and ten miles E.N.E. from Southampton. It has immemorially been the property of the see of Winchester, whence the affix 'Bishop's.' Domesday describes it among the lands of the see in Hampshire, and says that it was held in demesne, and had always belonged to the bishopric. It was then, as formerly, assessed at twenty hides, but there were actually thirty. It was in the time of the Confessor worth 31*l.*, was afterwards worth 10*l.* 10*s.*, but was then worth 30*l.* There were seventy villagers and fifteen yeomen, employing twenty-six ploughs; there were seven servants; and Radulphus, a priest, held two churches belonging to the manor, with two hides and a half. There were three mills which paid 17*s.* 6*d.* Leland speaks of Bishop's Waltham as 'a praty townlet. Here the bishop of Winchester hath a right ample and goodly maner-place, motid about, and a praty brooke running hard by it. The maner-place hath been of many bishops' building; most part of the three parts of the lease court was buildid of brick and timbre by Bishop Langten; the residew of the inner part is all of stone.' . The brook mentioned is the small river Hamble, the source of which is about a mile from the village, and passes through a piece of water which is described as having been a large and beautiful lake, half a mile long and a furlong broad; but it is now deprived of this character by the growth of rushes and the encroachments of the soil. The bishop's castle, mentioned by Leland, was originally built by Bishop Henry de Blois, brother of King Stephen; but much of the grandeur which it ultimately attained is attributed to the architectural taste of William de Wykeham, whose favourite residence it was, and who there terminated his active life at the age of eighty. The great hall in the second or inner court was 65 feet in length, 27 in breadth, and 25 high, and was lighted by five large windows of magnificent proportions. The castle was demolished during the civil wars by the parliamentary army under Waller; and the ruins, which consist of the remains of the hall and of a square tower, are now mantled with ivy. The park in which it stood has since been converted into farms. The town is chiefly remarkable for the neighbourhood of this castle. It has however a trade of some activity in leather, of which it sends large quantities to Guernsey, London, and the neighbouring fairs; there is also some business in malting. Its market is held on Friday; and there are fairs on the second Friday in May, July 30th, and the first Friday after Old Michaelmas-day. The parish contained 438 houses in 1831, when the population amounted to 2181 persons, of whom 1115 were females. The church, which is dedicated to St. Peter, accommodates 1100 persons. The living is a rectory, with a net income of 915*l.* per annum, in the diocese of Winchester, the bishop being patron. There is an endowed charity school in the town founded by Bishop Morley, who endowed it with an annuity of 10*l.*; this sum has been augmented to 38*l.* by subsequent benefactions, and now provides instruction for thirty-six boys. There are also two national schools in the town, containing together eighty boys and as many girls.

Waltham forest, in this vicinity, was in the early part of the last century infested by a formidable and resolute gang of deer stealers who called themselves 'hunters,' but were more generally known by the name of the 'Waltham Blacks,' because they blackened their faces in their predatory enterprises. They are mentioned by this name in the act of parliament which was passed against them, and which was therefore, as well as from its extreme severity, called the Black Act. This act declared more deeds to be felonies than had ever before been comprehended in a single statute. On this account, when Bishop Hoadly was advised to re-stock Waltham Park, he refused, observing that 'it had done mischief enough already.' (Leland's *Itinerary;* Gough's *Camden's Britannia;* Warner's *Collections for the History of Hampshire; Beauties of England and Wales,* &c.)

BISHOP WEARMOUTH. [See SUNDERLAND.]

BISIGNA'NO, a small town in the province of Calabria Citra, in the kingdom of the two Sicilies, situated on a hill near the right bank of the river Crati, about thirteen miles N. of Cosenza, and about three miles from the high road to Naples. Bisignano gives the title of Prince to the representative of the family of Sanseverino, one of the oldest families of the kingdom of Naples, which once possessed vast territories in this district.

BISLEY, a parish and market-town in the hundred of Bisley, county of Gloucester, 91 miles W. by N. from London, and 9 miles S.E. from Gloucester. This large parish is from 20 to 25 miles in circumference, and comprehends about 6000 acres, the greater part of which is high ground, with steep hills and narrow valleys. The sides of the hills present inclosed arable lands, interspersed with copses, and the valleys are mostly kept for pasturage, and are watered by many rivulets. which form the Stroudwater River. Bisley, Chalford, and other hamlets in the parish, are chiefly inhabited by persons employed in the woollen manufactures; and many fulling and dressing mills are erected in different parts of the parish. On the establishment of the woollen manufactures the parish received large additions to its population, and the new inhabitants established themselves upon the waste lands. Such lands were formerly very extensive. It appears from Holinshed that when the commons were given to the poor by Roger Mortimer, Earl of March, in the time of Edward III., they comprehended 1200 acres. In 1730, although the commons were much reduced then by inclosures, they comprehended 700 acres, but they have since undergone further reduction by additional inclosures.

In the Domesday Survey the manor of 'Biselege,' in the hundred of 'Biseleie,' is described among the lands of Earl

Hugh, whose brother Robert held this manor of him. It was rated at eight hides. We count ninety-one persons enumerated in this statement as holding property, or attached to the property, and who may be considered as equivalent to as many families. The enumeration comprehends, among others, two priests, twenty villeins, twenty-eight *bordarii*, translated 'yeomen' by Kennett, and twenty-three persons paying a rent of 44*s.* and two sextaries of honey. There were five mills of 16*s.* value, and a wood of 20*s.*, and eleven burgages in Gloucester yielding 66*d.* The manor had been worth 24*l.* per annum, but was then worth only 20*l.* The singular circumstance of two quarts of honey being specified as an annual rent, induces Bigland to hazard a conjecture that the parish derived its name from *Bees*; but a previous historian, taking into account the woody character of the district, which character was probably more prevalent at a former period, thought it not unlikely that the name is a compound of *Bois*, a wood, and *leaz*, a lea or pasture.

Soon after the Domesday Survey the manor of Bisley came to the crown, and in the time of Edward I. it passed, by marriage, to the Mortimers, afterwards earls of March. It continued in that family for nearly three centuries, devolved to Edward, Duke of York, afterwards Edward IV., the heir-general of that family in the female line. From that time it remained attached to the crown, with little interruption, until it was given by James I. to the Marquis of Rockingham, who sold it to Dr. Masters, since which it has remained exclusively in private hands, and has several times passed by sale from one family to another.

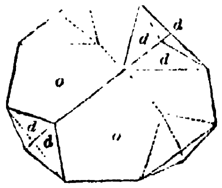
Bisley is little more than a village, although considered as a town since the grant of a weekly market and two annual fairs by James II. The market-day is Thursday: it is but little frequented, and may be considered almost extinct. The fairs for cattle, &c., on May 4 and November 12, are however of considerable importance. The population returns do not give any account for the town separately from the parish, which, in its large extent, comprehended 1480 houses in 1831, with a population of 5896 persons, of whom 3090 were females. The village, which stands partly upon the acclivity of a hill and partly in the valley below, consists of irregular streets, and has not many houses of good appearance. The church, dedicated to All Saints, is spacious, and may be called handsome; and, being placed on an eminence, is a very conspicuous object. It consists of a nave and two aisles, and is considered to have been built, at least in part, about the time of Edward IV. Bigland calls the steeple 'a clumsy obelisk,' but says it is useful as a land-mark. The church was re-pewed in 1771, when a fresco painting, in very lively colours, and about ten feet square, representing St. Michael subduing the fallen angels, was discovered against the north wall, but it was immediately defaced. The church contains some interesting monuments, among which one in memory of a crusader, with his effigies in armour, attracts particular attention. The church accommodates 1200 persons. The living is a vicarage in the diocese of Gloucester, in the gift of the crown, and has a net income of 527*l.* In the churchyard there stands an antient octagonal stone cross. It appears to have been erected over a deep well, into which a man fell and was drowned, in consequence of which the churchyard was placed under an interdict for three years, during which time the inhabitants were obliged to carry their dead to Bibury for interment. Mr. S. Lysons, in his *Antiquities of Gloucestershire*, thinks, from the style of ornament, that this cross was erected in the thirteenth century. It is now surmounted by an antient stone fount, which was removed from the church when it was new pewed.

There are church lands at Bisley which have from time immemorial formed the estate of the parish. The proceeds amount to about 100*l.* per annum, a portion of which is appropriated to the support of what is called the 'Free School,' the master of which receives out of it 13*l.* 14*s.* as his salary. He is allowed to take some day-scholars, and is also the master of the Blue-coat School, founded by the will of John Taylor (dated in 1732), who bequeathed lands, at present producing 55*l.* 10*s.* per annum, for the education and clothing of ten boys. The additional salary of the schoolmaster from this source is twelve guineas per annum. The two establishments are taught together in a commodious schoolroom, standing on ground belonging to the parish. The children are taught to read and write, and are instructed in the Church catechism.

The canal by which the Thames and Severn are united passes through this parish; and near the border of it, at Sapperton, enters a tunnel two miles and five furlongs in length. It is lined with masonry, and arched over at top, with an inverted arch at the bottom, except at some few places, where the solid rock being scooped out renders it unnecessary. The summit level of the Thames and Severn canal at Sapperton tunnel is 376 feet above low water-mark at London.

(Bigland's *Collections relative to the County of Gloucester*; Rudder's *History of Gloucestershire*; Rudge's *History of the County of Gloucester*; Lysons's *Collection of Gloucestershire Antiquities*; *Beauties of England and Wales*; *Reports on Charities*; Phillips's *General History of Inland Navigation*.)

BISMUTH ORES. The minerals in which this metal constitutes the principal ingredient are comparatively few in number; and of these only two species are of any importance in a commercial point of view, namely, the native bismuth, and its sulphurets. The general characters of these minerals are the following: Before the blow-pipe they are readily fused and reduced to a metallic state, the regulus itself gradually subliming if the flame be continued, leaving on the charcoal an orange-yellow areola, which however may readily be made to disappear in the deoxidizing flame. When the metallic regulus is fused in an open glass tube, a yellowish-white sublimate is obtained, and the regulus itself becomes covered by the fused oxide, which while hot is of a dark brown colour, but assumes a yellow tint on cooling. These minerals are all of them soluble in strong nitric acid, the solution yielding a white precipitate on being dropped into water. They are known and described by mineralogists under the following names:—Native or Octahedral Bismuth, Bismuth-ochre, Prismatic Bismuth-glance, Needle-ore or Acicular Bismuth-glance, called by Phillips Plumbo-cupriferous Sulphuret of Bismuth; Tellurbismuth, formerly known by the name of Molybdan silver. Native, or octahedral Bismuth, is sometimes found crystallized: the observed forms are the octahedron, the tetrahedron, and combinations of the latter with the dodecahedron, which produce the shape seen in the accompanying figure.



The faces marked *o* belong to the tetrahedron and those marked with *d* to the rhombic dodecahedron. The edge between the faces *o* is therefore 70° 32′, between the faces *d* 120°, and in the edges of combination between *o* and *d* 144° 44′. These crystals are generally very imperfect, and the faces rough and uneven; they possess a perfect cleavage parallel to the faces of the octahedron. The hardness varies from 2 to 2·5; the specific gravity from 9·6 to 9·8. The crystals are opaque, possess the metallic lustre, and the fresh fracture presents a reddish silver white, but the surface is usually tarnished owing to partial oxidation, and presents a variegated appearance of grey, red, and blue colours. They may be considered as presenting us with the metal bismuth in a pure state, the only foreign matter being traces of arsenic. The occurrence of crystals is somewhat rare, this mineral being usually found in feathery and arborescent forms, and also in dentiform concretions in veins traversing gneiss, mica, and clay-slates, where it is usually accompanied by ores of silver, cobalt, nickel, and iron. It is found at St. Colomb and Botallack mines in Cornwall, and at Carrock in Cumberland, but in much greater abundance in the mines of Saxony and Bohemia, at Johann-Georgenstadt, Annaberg, Altenberg, Schneeberg, and at Joachimsthal, from whence the greater portion of the bismuth of commerce is obtained. It is also found at Beiber in Hainau, at Loling in Carinthia, and in the Sophia mine at Wittichen in Fürstenberg.

The bismuth-ochre is a rare mineral, which occurs massive and disseminated. It is of a straw-yellow, passing sometimes into a light yellowish grey. Its specific gravity is 4·36, and its chemical constitution

Bismuth	89·87
Oxygen	10·13

It usually contains small quantities of arsenic and oxide of iron as impurities. Its known localities are St. Agnes, Cornwall; Schneeberg and Johann-Georgenstadt in Saxony; and Joachimsthal in Bohemia.

BISMUTH-GLANCE. This mineral occurs in four-sided prisms of unknown dimensions, but it is stated by Phillips to have angles about 91° and 89°. It is further characterized by its metallic lustre, and lead-grey approaching steel-grey colour, and from its possessing a perfect cleavage in the direction of the short diagonal, and one less perfect in the direction of the base. According to Mohs the hardness is between 2 and 2·5, and the specific gravity 6·549. It also occurs massive of a granular composition, or columnar, the individuals being long and straight, and aggregated in various directions. According to the analysis of H. Rose of a specimen from Reddarhyttan, it is thus composed:

Sulphur	18·49	18·72
Bismuth	81·51	80·98

which denotes a compound expressed in the notation of Berzelius by $\overset{\prime\prime\prime}{Bi}$.

Before the blow-pipe sulphur is first driven off, which is followed by a sublimate having the odour of tellurium, and afterwards the characters are the same as those of the other minerals of bismuth.

The other minerals will be found described under the names of Needle-ore and Tellurbismuth; but it may be as well to state, that according to Berzelius, there exists another sulphuret of bismuth, composed of one atom of each of its constituents, a mineral found in the Gregers Klack, Bispberg, which has hitherto been considered as pure bismuth.

BISMUTH, a metal mentioned by Agricola about 1529, but first shown to be a peculiar one by Stahl and Dufay: this metal generally occurs native, sometimes combined with sulphur, but rarely with oxygen, in Saxony, Bohemia, and Transylvania. Bismuth is of a reddish white colour, its lustre is considerable, and its structure lamellated; it is so brittle as to be easily reducible to powder, when cold; its density is 9·83, which by cautious hammering while warm may be increased to 9·88; it melts at 462° according to Daniell, at 476° by Dr. Irvine's experiments, while Mr. Crichton, jun. makes its fusing point 497°. At a high temperature this metal is volatilized, may be distilled in close vessels, and solidifies in foliated crystals; if it be merely melted in a crucible and cautiously cooled, it crystallizes in well-defined cubes.

Bismuth as met with in commerce is not pure, for it generally contains iron and arsenic, and probably some other metals; in order to purify it, it is to be dissolved in nitric acid, the solution is to be decomposed by water, and the precipitate, after being boiled in a solution of soda, is to be mixed with black flux, and moderately heated in a crucible.

Oxygen and Bismuth combine in at least two proportions, forming the protoxide and peroxide. When this metal is heated to whiteness in the air it takes fire and burns with an obscure blue flame, and is converted into a yellow powder, which is the protoxide of bismuth, composed of

1 equivalent of metal		71
1 do.	of oxygen	8
1 do.	protoxide	79

When the steam of water is passed over ignited bismuth the metal is not oxidized, and consequently the water is not decomposed by this process. The best method of preparing the protoxide is to dissolve the metal in nitric acid, to decompose the solution by water, and calcine the precipitated subnitrate in a crucible. The resulting oxide is of a straw colour, is insoluble in water, but readily dissolved by acids, and is the only oxide of this metal which forms salts with them. Neither potash nor soda nor their carbonates dissolve this oxide, nor does ammonia, but the carbonate takes up a little of it.

Peroxide of Bismuth is obtained by heating the protoxide with a solution of chloride of lime or soda; the ebullition must be continued for a considerable time. The oxide of bismuth assumes at first a fine ochre yellow colour, and at length it becomes deep brown; it is then to be well washed, and in order to separate any protoxide which may remain, it is to be treated with cold nitric acid, diluted with nine parts of water; this is to be added in excess, to prevent the formation of subnitrate of bismuth; it is then to be washed, at first with weaker acid, then water, and to be dried by a gentle heat. The peroxide thus prepared is a heavy deep brown powder, strongly resembling peroxide of lead; when heated to about 600° it is decomposed, oxygen gas is evolved, and yellow protoxide of bismuth remains. It forms no compound with any acid; from muriatic acid it evolves chlorine, by hydriodic acid it is converted into a fine brown iodide, and the liquor becomes yellow, owing to the presence of free iodine; other acids, under various circumstances, evolve oxygen from it. The fixed alkalies and ammonia produce no effect upon it; the loss of weight which it suffers by being merely heated shows that it is composed of

2 equivalents of metal		142
3 do.	oxygen	24
	equivalent	166

or it may be regarded as a sesquioxide, composed of 71 = 1 eq. metal + 12 = 1½ eq. of oxygen.

According to Berzelius there exists also a suboxide of this metal, but it is most probably a mere mixture of the protoxide and the metal.

Chlorine and Bismuth combine in two proportions at least. The protochloride may be obtained by dissolving the protoxide in concentrated muriatic acid, and evaporating the liquor to the point of crystallization. This salt is colourless and volatile, so that it may be distilled; it was formerly called butter of bismuth; when heated it flows like oil, but it solidifies on cooling. This compound may also be prepared by heating one part of powdered bismuth with two parts of perchloride of mercury; the results are protochlorides of both metals. It is composed of

1 equivalent of metal		71
1 do.	chlorine	35
	equivalent	106

When a neutral solution of nitrate of bismuth is poured into a concentrated solution of common salt, a subchloride of bismuth is precipitated or probably an oxychloride; it was formerly employed as a cosmetic under the name of magistery of bismuth. Its exact composition has not been determined.

Fluorine and Bismuth form a fluoride which is soluble in water and which precipitates during evaporation in the state of a white powder.

Bromine and Bismuth combine to form the bromide when the metal in powder is heated in the vapour of bromine in a long tube closed at one end; excess of bromine must be employed; the combination is effected without any evolution of light. Yellow vapour arises and condenses on the sides of the tube, and the compound remains at the bottom of it. The yellow vapour probably contains less bismuth than the more fixed bromine, which appears to be composed of

1 equivalent of bromine,		80
1 ditto	bismuth,	71
	equivalent	151

This bromide is of a steel grey colour, and fuses at about 392°, when it becomes of a hyacinth red colour, but it returns to the grey on cooling; by exposure to the air it absorbs moisture and is rendered yellow; a large quantity of water decomposes it, and there is formed a sub-bromide of bismuth, which separates, while hydrobromic acid combined with a little oxide of bismuth remains in solution.

Iodine and Bismuth readily combine with the assistance of heat, when the metal is finely powdered; this iodide has a deep orange colour: it is insoluble in water, but is dissolved by potash: it is probably composed of

1 equivalent of iodine		126
1 ditto	bismuth	71
	equivalent	197

When a solution of chloride of bismuth is gradually dropped into a weak solution of iodide of sodium, a chesnut coloured precipitate is formed, which appears to be a subiodide.

Sulphur and Bismuth occur in combination and crystallized at Reddarhyttan in Westmanland, and they very readily combine and form a sulphuret which has a metallic lustre and a crystalline texture; it is not very fusible, and its density is 7·501. Sulphuretted hydrogen throws down black sulphuret from the solutions of this metal, and also converts its oxide into sulphuret. Sulphuret of bismuth is composed of

1 equivalent of bismuth		71
1 ditto	sulphur	16
	equivalent	87

Phosphorus and Bismuth have but little affinity for each other: when phosphorus was dropped into melted bismuth the metal appeared to suffer but little alteration: it was found, however, when tried with the blowpipe, to yield evident traces of phosphorus, though not amounting to more than about four per cent. and this was probably mixed and not combined. Phosphuretted hydrogen gas throws down a black phosphuret of bismuth from solutions of the metal.

No compound of bismuth and carbon or boron is known.

Selenium and Bismuth unite with the evolution of a slight degree of heat; this seleniuret is of a silver-white colour and metallic lustre; its texture is crystalline and it melts at a red heat.

Bismuth and the other metals combine to form alloys, and it frequently renders the metal with which it unites more fusible.

Potassium and bismuth form an alloy; it may be prepared directly; or indirectly by calcining bismuth with bitartrate of potash; when this alloy is put into water hydrogen is evolved, potash is formed and dissolved, and bismuth remains in fine powder. Sodium forms a similar alloy with bismuth; for arsenic it has but little affinity, but combines with antimony and tellurium in all proportions.

Newton's fusible metal is composed of eight parts of bismuth, five of lead, three of tin; this alloy melts at 212°. Rose's alloy is still more fusible; it is made of two parts bismuth, one lead, and one tin; it fuses at about 201°.

Bismuth combines with copper to form a pale red brittle alloy; it forms also a brittle compound with silver, and it has been proposed as a substitute for lead in refining silver: it is said to form a more fluid oxide, which penetrates the cupel more readily than that of lead, and may also be used in smaller quantity.

With mercury bismuth forms a very fluid alloy; it renders the following metals brittle by combination:—tungsten, palladium, rhodium, gold, and platina.

Bismuth and acids combine to form salts of bismuth; the nitrate is one of the most important and most easily obtained, because a part of the acid being decomposed it yields the oxygen requisite to render the metal soluble in the remaining acid.

When nitric acid is only moderately diluted it acts with great readiness upon bismuth; much nitric oxide gas is evolved, and a colourless solution of nitrate of bismuth is procured, which by cautious evaporation yields deliquescent crystals composed of

1	equivalent of acid	54
1	ditto oxide bismuth . . .	79
3	ditto water	27
	equivalent	160

This salt, as well as the solution which yields it, is decomposed by water, a sub-nitrate being thrown down which is directed to be prepared in the *London Pharmacopœia* under the name of bismuthi subnitras; it is a trisnitrate composed of one equivalent of acid + three of oxide.

Sulphuric acid, neither concentrated nor dilute, acts upon bismuth unless heat be employed, and then the strong acid is decomposed with the evolution of sulphurous acid gas; there are formed in this process a small quantity of a super and subsulphate of bismuth, neither of which is applied to any use.

Carbonate of bismuth is a white tasteless powder procured by adding an alkaline carbonate to the solution of the nitrate; it appears to be a tris-carbonate, and is applied to no use.

Most of the salts of bismuth are colourless, and they are generally decomposed by water; ferrocyanate of potash gives a white gallic acid an orange yellow, and sulphuretted hydrogen a black precipitate when added to solutions of bismuth: copper and tin, when put into solutions of bismuth, throw down this metal.

Bismuth is principally employed for the purpose of making fusible alloys and as an ingredient in solders. It is often called in the arts *tin-glass*.

BISMUTH, MEDICAL USES OF. Bismuth taken into the stomach in the state of a metal produces no effect upon the human system. It is therefore in the form of one of its preparations that it is employed as a medicinal agent; and for this purpose the subnitrate, called also the *magistery* of bismuth, and also, incorrectly, the white oxide of bismuth, is generally preferred. This is a white powder, sometimes in lumps resembling chalk, inodorous and tasteless. It is insoluble in water, and but slightly soluble in the juices of the stomach, a circumstance which accounts for its limited sphere of action; hence its employment is almost entirely confined to affections of the stomach itself. In large doses, however, it is undoubtedly poisonous, and produces vomiting, with small pulse, faintings, and even death, the stomach exhibiting erosions and signs of inflammation. Even its external application is not free from danger, for the cosmetic termed *pearl white*, or *Spanish white*, which is subnitrate of bismuth, when applied for a length of time to the face, causes nervous twitchings, and finally paralysis. Subnitrate of bismuth is considered a tonic, and in nervous pains and cramps of the stomach it is decidedly antispasmodic. In what is termed *gastrodynia*, either given alone, or with one grain of opium, it is in general more efficacious than any other means in speedily removing the pain. It is also sometimes useful in *pyrosis*, especially if complicated with affections of the pancreas. In this case it is advantageously combined with rhubarb. Extract of hops is also an appropriate vehicle for it. Being insoluble in water it can never be administered in that vehicle.

Its employment has been proposed in hysteria, tetanus, and intermittent fever, but its utility is very slight when the cause of these diseases is remote from the stomach. In case of an overdose, tea, white of egg, or milk, are the best antidotes. As *pearl white* is blackened by sulphuretted hydrogen, the face of those who employ this cosmetic is blackened by the use of the Harrowgate or other sulphureous waters.

BISNAGHUR. [See Bijanaghur.]

BISON (zoology), the name of a subgenus of the genus *bos*, ox, comprehending two living species, one of them European, now become very scarce and verging towards extinction; the other American, and, notwithstanding the advances of man, still multitudinous.

European Bison.

A good deal of difference of opinion has thrown some obscurity over this species. Pennant, in his *British Zoology*, after stating his belief that the antient wild cattle of our island were the *Bisontes jubati* of Pliny, thus continues:—'The Urus of the Hercynian forest, described by Cæsar, book vi., was of this kind, the same which is called by the modern Germans, Aurochs, *i. e. Bos sylvestris*.' Now let us look at Cæsar's description. 'These Uri are little inferior to elephants in size, but are bulls in their nature, colour, and figure. Great is their strength and great their swiftness, nor do they spare man or beast when they have caught sight of them. These, when trapped in pitfalls, the hunters diligently kill. The youths exercising themselves by this sort of hunting are hardened by the toil; and those among them who have killed most, bringing with them the horns as testimonials, acquire great praise. But these Uri cannot be habituated to man or made tractable, not even when young. The great size of the horns, as well as the form and quality of them, differs much from the horns of our oxen. These, when carefully selected, they ring round the edge with silver and use them for drinking-cups at their ample feasts.'* Though there are parts of this description applicable to the European bison, there is one striking character which forbids us to conclude that Cæsar's Urus was identical with it. A glance at the European bison will convince us that it never could have afforded the horns whose amplitude Cæsar celebrates. In the *Archæologia*, vol. iii. p. 15, it is stated that the Bor-tal horn is supposed to have belonged to the bison or buffalo. That it might have belonged to a buffalo is not impossible, but that it did not belong to a bison is sufficiently clear from the following description. 'It is two feet four inches long on the convex bend, and twenty-three inches on the concave. The inside at the large end is three inches diameter, being perforated there so as to leave the thickness only of half an inch for about three inches deep; but farther in it is thicker, being not so much or so neatly perforated.' Such a horn might indeed have crowned the head of Cæsar's Urus, a species which we believe with Cuvier to be extinct; and it will be no uninteresting investigation to inquire what species or variety afforded some of those antient horns which bore so prominent a part in many of the old conveyances.*

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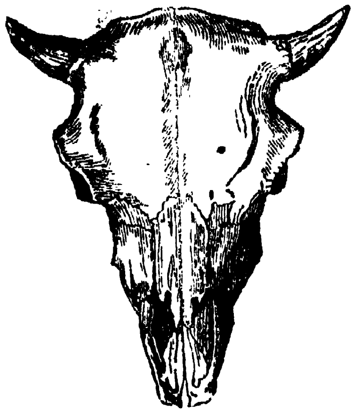
* It is not improbable that the large horns (*ὑπερφυῆ κέρατα*) of the oxen mentioned by Athenæus (book xi. c. 5, s. 34, and book xi. c. 7, s. 51, vol. iv. p. 233, et seq. Schweighaeuser), may have been those of Cæsar's Uri. He says that Pelias's cup was, perhaps, formed of a horn of these oxen, and that some of their horns were so large as to contain three and four choes (*ὡς χωρεῖν τρεῖς καὶ τέτταρας χόας*). A choe was probably about a gallon. He also mentions the custom of surrounding the lip of such drinking-cups with a rim of gold or silver (*τὰ χείλη περιαργυροῦντας καὶ χρυσοῦντας*). The whole passage, where he observes that ox horns were the primitive drinking-cups (*τοὺς πρώτους λέγεται τοῖς κέρασι τῶν βοῶν πίνειν*), whence the horns of Bacchus and the worship of that deity under the form of a bull, is worthy of attention with reference to the next note.

Herodotus (vii. 26) records the Macedonian wild oxen with exceeding large horns (*βόες ἄγριοι, τῶν τὰ κέρεα ὑπερμεγάθεα ἐστι*). These wild oxen were probably Cæsar's Uri.

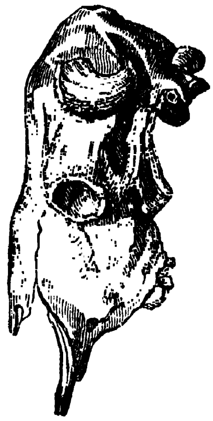
Having endeavoured to demonstrate that Cæsar's *Urus* was not the *European Bison*, we proceed to show that the common ox and the latter, so far from being derived one from the other, are descended from two distinct species equally antient, and which have existed in our climates at epochs more or less distant and perhaps at the same time. Daubenton, Cuvier, and Gilibert have, we think, sufficiently proved this. From them it appears that the *Aurochs* or *European Bison* has fourteen pairs of ribs, while the ox has but thirteen, and that the legs of the aurochs are more slender and longer than those of the ox and true buffalo. The European bison, moreover, has but five lumbar vertebræ, while the other oxen, with the exception of the American bison, which has only four according to Cuvier, possess six.

'The front of the common ox,' says Cuvier, 'is flattened, and even in a small degree concave; that of the aurochs is rounded into convexity (bombé), though rather less than that of the buffalo. It is square in the ox, its height being nearly equal to its breadth, taking for its base an imaginary line between the orbits. In the aurochs, with the same mode of measurement, it is much broader than it is high, in the proportion of three to one. The horns are attached, in the ox, to the extremities of the most elevated salient line of the head, that, namely, which separates the occiput from the front; in the aurochs this line is two inches further back than the root of the horns. The plane of the occiput makes a sharp angle with the front in the ox; this angle is obtuse in the aurochs, and lastly this quadrangular plane of the occiput, as it is in the ox, represents a half circle in the aurochs.'

The figures here given were taken from the skull of the European Bison or Aurochs in the museum at Paris.



[Skull of European Bison, front view.]



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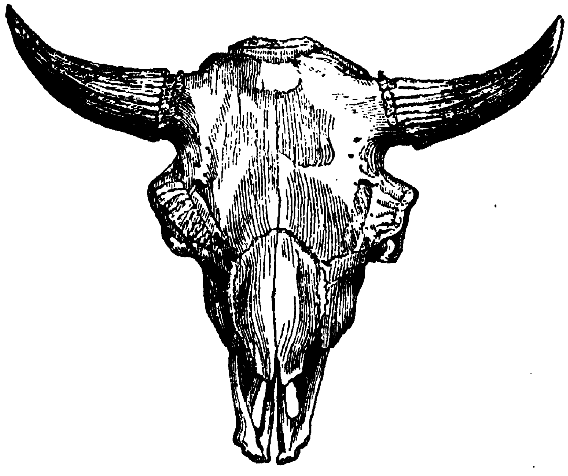
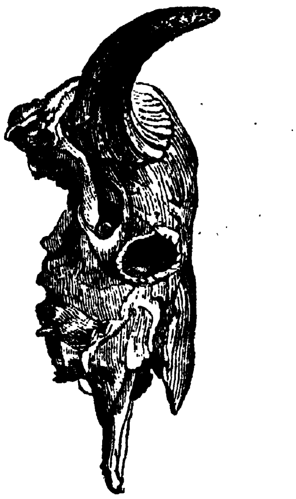
But this must have been a young animal, as will be seen from comparing the representation of its skull with that of the patriarch that died at Schönbrunn.



[Skull of old European Bison, front view.]



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* 'Amongst the various methods of transferring inheritances in use with our ancestors,' says Pegge (*Arch.* vol. iii. p. 1, et seq.), 'was that of conveying them by a horn either in Frank Almoigne, or in Fee, or in Serjeantry. Ingulphus, abbot of Croyland, particularly specifies the horn amongst those things whereby lands were conveyed in the beginning of the Conqueror's reign. His words are too remarkable to be omitted on this occasion. "Conferebantur etiam primo multa prædia nudo verbo, absque scripto vel chartâ, tantum cum domini gladio, vel galeâ, vel *cornu*, vel craterâ; et plurima tenementa cum calcari, cum strigili, cum arcu, et nonnulla cum sagittâ." At first, says Ingulphus, speaking of the Conqueror's time, many estates were transferred by bare word of mouth, without any writing or charter, only by the lord's sword, or helmet, or *horn*, or cup; and many tenements by a spur, a scraper, a bow, and some by an arrow.'

The following account of the Borstal horn is given in the third volume of the *Archæologia*.

Edward the Confessor had a royal palace at Brill, or Brehul, in Bucks, to which he often retired for the pleasure of hunting in his forest of Bernwood. This forest, it is said, was much infested by a wild boar, which was at last slain by one Nigel, a huntsman, who presented the boar's head to the king; and for the reward the king gave to him one hyde of lande, called Derehyde, and a wood called Hulewode, with the custody of the forest of Bernwood, to hold to him and his heirs per anum cornu, quod est charta prædictæ forestæ.

The original horn was all along preserved by the lords of Borstal under the name of Nigel's horn, and is now (1773) in the possession of John Aubrey, Esq., son and heir of Sir Thomas Aubrey, Bart., to whom this estate has descended without alienation or forfeiture, from before the Conquest to the present time, by several heirs female from the family of Nigel to that of Aubrey. (*Archæologia*, iii. 15.)

Of still more antient date is the Pusey horn (*Archæol.* vol. iii.), 'a real ox-horn two feet one half inch long, the circumference in the largest part one foot, in the middle nine inches one-fourth, at the small end two inches one-fourth.' On a ring of silver gilt that girt it was the following inscription:—

'Kyng Knowde (Canute) geve Wyllyam Pewse
This horne to holde by thy lond.'

Bugle-horn will occur to every one as being derived from *buculus* or *bucula*. Thus Johnson, word 'bugle, bugle-horn,' writes 'from buȝen, Saxon, to bend, Junius; from bucula, Lat., a heifer, Skinner; from bugle, the bonasus, Lye. It is very natural that the term of the beast should be applied to the horn. See Bugle;' and at that word Johnson writes 'old Fr. bugle, bos, Lacombe. A bull in Hampshire is called a *bagle*.'

Chaucer thus writes in his 'Frankeleins Tale,'—

'The bitter frost with the slidder raine
Destroyed hath the greene in every yerd.
Janus sit by the fire with double berd,
And drinketh of his bugle horne the wine,
Beforn him stont brawne of the tusked swine.'

It is worthy of note that Littleton, word bison, calls that beast a bugle.

We are well aware that many of these antient horns—that at York affords a fine example—were of ivory and richly carved; but we have selected the two horns above described because they clearly belonged to some animal of the genus *bos*, though certainly not to the European bison or aurochs.

The distinctions, however, are not confined to the skeleton, for the tongue of the aurochs is blue, according to Gilibert, who thus points out, in addition, the following external differences:

'The hairs of the cow are stiff and sessile upon the skin; those of the female Bison are soft and make an obtuse angle. In the cow they are uniform; in the Bison there are two kinds, as in the beaver, one kind short and yellow, the others longer and of a blackish chesnut. The longest are at the bottom of the neck near the shoulders, and those of the male are fourfold longer than those of the female. There are still longer ones under the lower jaw and neck, and those of the front limbs descend to the mid-leg, and sometimes to the feet. They are all soft and woolly; along the nape to the hump there is a succession of sub-erected hairs; but upon the back and hinder parts the hair is short, which makes those parts appear delicate in proportion to those of the ox. The tail descends to the hock, and is furnished with long and thick hairs towards the extremity. In summer the aurochs loses the greatest part of its long hair, and then has an entirely different aspect, but it only gets the short hair by little and little, and its skin is never naked. It is the hair of the summit of the head particularly that gives out an odour of musk, especially in winter; but this odour is lost by degrees in the domesticated state. The hair of the males is blackest, and that of the front is longer and more curly; the odour is strongest in them, but the horns are small in both sexes. The thickness of the hide of the aurochs is double that of a common bull's hide. The individuals which have been observed alive showed a great antipathy to the common cattle.'

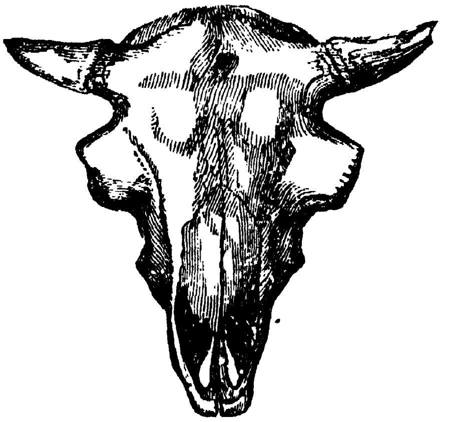
There can be little doubt that the *Bison jubatus* of Pliny (book viii. c. 15, and xxviii. c. 10), which he seems to distinguish from the *Urus*, was the *European Bison* or *Aurochs*; and though in the fifteenth chapter of the eighth book he mentions the tradition of a wild beast in Pæonia called a *Bonasus*, after he has dismissed his *Bisontes jubati*, and with every appearance of a conclusion on his part that the *Bonasus* and *Bison* were not identical, his own description, when compared with that of Aristotle, will leave little doubt that the *Bison jubatus* and *Bonasus* of Pliny and others, the Βόνασσος or Βόνασος of Aristotle (for the word is written both ways), and the Βίσων of Oppian,* were no other than the *European Bison*, the *Aurochs* (Auerochs) of the Prussians, the *Zubr* of the Poles, the *Taurus Pæonius*, &c. of Jonston and others, *l'Aurochs* and *le Bonasus* of Buffon, *Bos Urus* of Boddaert, and *Bos Bonasus* of Linnæus.

[Bison Europæus.]

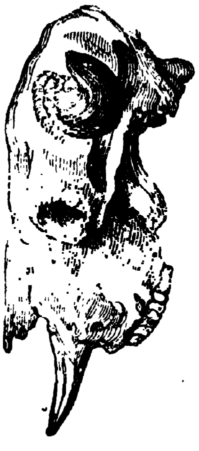
Cuvier considers it as certain that this animal, the largest, or at least the most massive of all existing quadrupeds after the rhinoceros, an animal still to be found in some of the Lithuanian forests, and perhaps in those of Moldavia, Wallachia, and the neighbourhood of the Caucasus, is a distinct species which man has never subdued; nor do we think that any one who takes the trouble to consider the evidence on which Cuvier's conclusion was founded will be of a different opinion. Following out this subject with his usual industry and ability, that great naturalist goes on to state (*Ossemens Fossiles*) that if Europe possessed a *Urus*, a *Thur* of the Poles, different from the *Bison* or the *Aurochs* of the Germans, it is only in its remains that the species can be traced: such remains are found, in the skulls of a species of ox different from the aurochs, in the superficial beds of certain districts. This Cuvier thinks must be the true *Urus* of the antients, the original of our domestic ox, the stock perhaps whence our wild cattle descended; while the aurochs of the present day is nothing more than the Bison or Bonasus of the antients, a species which has never been brought under the yoke. [See Ox and URUS.]

This antient species is fast following its extinct congener the *Urus*. Pallas observes, that it is remarkable that the aurochs does not exist in any of the vast forests of Russia and Northern Asia, whence (if it had penetrated therein) hardly any thing could have eradicated it. As late as the reign of Charlemagne it was not rare in Germany, but the range of the species is now nearly confined to the mountainous country between the Caspian and Black Seas.

Cuvier, in the first edition of his 'Ossemens Fossiles,' considered the fossil skulls of oxen found in Europe as belonging to the aurochs, and those of Siberia as the crania of an extinct species; but, in his last, he declares that he has recognized both as the skulls of the same species, and opens the question. These skulls, though they differ scarcely in anything from those of the aurochs, he inclines to think the remains of a different species. He gives the portrait of a cranium in the Museum at Paris, here copied,* so like, as he observes, to the living aurochs, that the most practised eye can scarcely distinguish it; but so fresh that he seems to think it recent, and that it owes its fossil ap-



[Skull of supposed fossil Aurochs. Front view.]



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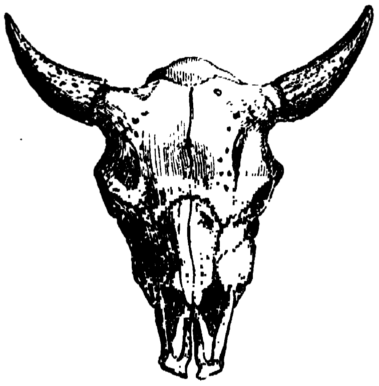
* Oppian's lively description of these indomitable Bisons, with their thick necks and shaggy manes—φρικαλίην χαίτην μὲν ἐπωμαδὸν—like those of lions (Cyneget. 2, 159, et seq.) cannot be mistaken.

* N.B. The crania figured in this article are all taken from Cuvier's 'Ossemens Fossiles.'

pearance to its having been much weathered. Lyell states that the bones of the bison have been found at North Cliff, in the county of York, in a lacustrine formation, in which all the land and fresh-water shells, thirteen in number, can be identified with species and varieties now existing in that county. [See Ox.]

American Bison.

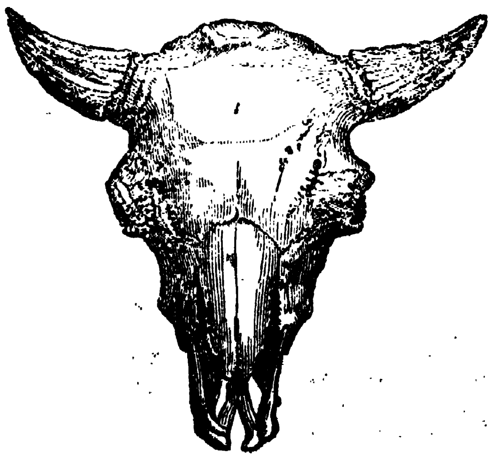
We have seen that the European Bison has fourteen pairs of ribs, while the common ox has but thirteen ; the specific difference of the *American Bison* is marked by its having fifteen ribs on each side. Thus, in the Bisons, the supplementary ribs spring from the anterior lumbar vertebræ, or rather from vertebræ which are lumbar as far as regards their situation, but dorsal when considered in relation to their functions. The contour of the skull has much in common with that of the European species, but its development, and indeed that of the whole frame, is much inferior in the female. Beneath is represented the skull of a young female American Bison,—



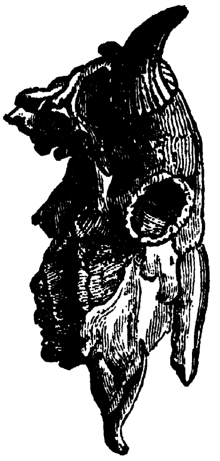
[Skull of young female American Bison. Front view.]

[Profile of the same.]

and we shall at once see how tame and weak its chiselling is when compared with that of the old male.



[Skull of old male American Bison. Front view.]



[Profile of the same.]

The *American Bison* has many points of similarity with the *Aurochs*. In both we have the huge head, and the lengthened spinous processes of the dorsal vertebræ for the attachment of the brawny muscles that support and wield it. In both we have the conical hump between the shoulders in consequence, and the shaggy mane in all seasons ; and each presents a model of brute force, formed to push and throw down.

[Bison Americanus. Females. A bull in the distanc

[Bison Americanus. A bull.]

This is the *Taurus Mexicanus* of Hernandez, who gives a wood-cut of the beast, but not a good one, the *Taureau Sauvage* of Hennepin, who also gives a figure of it, not better than that of Hernandez, and probably a copy from it, the *Buffalo* of Lawson, Catesby, &c., of the Hudson's Bay traders, and of the Anglo-Americans generally; the *Bison* of Ray and Pennant, *Bos Americanus* of Gmelin, *American Wild Ox* or *Bison* of Warden, *Peecheek* of the *Algonquin* Indians, *Moostoosh* of the Crees, and *Adgiddah* of the Chippewayans, according to Dr. Richardson.

Pennant says, 'in America these animals are found in the countries six hundred miles west of Hudson's Bay; this is their most northern residence. From thence they are met with in great droves as low as Cibole (N.B. on the authority of Purchas), in lat 33°, a little north of California, and also in the province of Mivera in New Mexico; the species instantly ceases south of those countries. They inhabit Canada to the west of the lakes; and in greater abundance in the rich savannas which border the river Mississippi, and the great rivers which fall into it from the west, in the Upper Louisiana. There they are seen in herds innumerable, promiscuously with multitudes of stags and deer during morning and evening, retiring in the sultry heats into the shade of tall reeds, which border the rivers of America.'

Joseph Sabine, in the appendix to Franklin's Narrative, says that they are abundant in all parts of North America, wherever the progress of cultivation has not interfered with their range, and that they are extremely numerous on the plains of the Saskatchewan river. They are also found, he observes, though less plentifully, in the woods as far north as Great Slave Lake. The most northern situation in which they were observed by Captain (now Sir John) Franklin's party was Slave Point, on the north side of the lake. In the same work it is stated, that the natives say that the Wood Buffaloes, as they are called, are larger than those of the plains, but the difference is not material.

Dr. Richardson, in his *Fauna Boreali-Americana*, gives the following compendious history of the geographical range of the American Bison:—'At the period when Europeans began to form settlements in North America, this animal was occasionally met with on the Atlantic coast; but even then it appears to have been rare to the eastward of the Apalachian mountains, for Lawson has thought it to be a fact worth recording, that two were killed in one season on Cape Fear River.* As early as the first discovery of Canada, it was unknown in that country, and no mention of it whatever occurs in the *Voyages* du Sieur de Champlain Xaintongeois, nor in the *Nova Françia* of De Monts, who obtained the first monopoly of the fur trade. Theodat, whose history of Canada was published in 1636, merely says that he was informed that bulls existed in the remote western countries. Warden mentions, that at no very distant date, herds of them existed in the western parts of Pennsylvania, and that as late as the year 1766 they were pretty numerous in Kentucky; but they have gradually retired before the white population, and are now, he says, rarely seen to the south of the Ohio, on the east side of the Mississippi. They still exist, however, in vast numbers in Louisiana, roaming in countless herds over the prairies that are watered by the Arkansa, Platte, Missouri, and upper branches of the Saskatchewan and Peace rivers. Great Slave Lake, in lat. 60°, was at one time the northern boundary of their range; but of late years, according to the testimony of the natives, they have taken possession of the flat limestone district of Slave Point, on the north side of that lake, and have wandered to the vicinity of Great Marten Lake, in lat. 63° or 64°. As far as I have been able to ascertain, the limestone and sandstone formations, lying between the great Rocky Mountain ridge and the lower eastern chain of primitive rocks, are the only districts in the fur countries that are frequented by the bison. In these comparatively level tracts there is much prairie land, on which they find good grass in the summer, and also many marshes overgrown with bulrushes and carices,† which supply them with winter food. Salt springs and lakes also abound on the confines of the limestone, and there are several well-known salt-licks, where bisons are sure to be found at all seasons of the year. They do not frequent any of the districts formed of primitive rocks, and the limits of their range to the eastward, within the Hudson Bay Company's territories, may be nearly correctly marked on the map by a line commencing in long. 97° on the Red River, which flows into the south end of Lake Winipeg, crossing the Saskatchewan to the westward of Basquiau Hill, and running from thence by the Athapescow to the east end of Great Slave Lake. Their migrations to the westward were formerly limited by the Rocky Mountain range, and they are still unknown in New Caledonia, and on the shores of the Pacific to the north of the Columbia river, but of late years they have found out a passage across the mountains, near the sources of the Saskatchewan, and their numbers to the westward are said to be annually increasing. In 1806, when Lewis and Clarke crossed the mountains at the head of the Missouri, bison-skins were an important article of traffic between the inhabitants on the east side and the natives to the westward. Farther to the southward, in New Mexico and California, the bison appears to be numerous on both sides of the Rocky Mountain chain.'

Before we describe the habits of the American bison, the modes of hunting it, and the uses to which the several parts of the animal are put, it may be well to give some idea of the vast wildernesses where it roams in unrestrained freedom. We know not how to convey this idea better than in the words of Washington Irving, who possesses the magic art of converting the reader into a spectator of the scene described. In his *Tour on the Prairies*, the following panoramic views are presented to us:—

'After a toilsome march of some distance through a country cut up by ravines and brooks, and entangled by thickets, we emerged upon a grand prairie. Here one of the characteristic scenes of the "far west" broke upon us,—an immense extent of grassy, undulating, or, as it is termed, "rolling" country, with here and there a clump of trees dimly seen in the distance like a ship at sea, the landscape deriving sublimity from its vastness and simplicity. To the south-west, on the summit of a hill, was a singular crest of broken rocks, resembling a ruined fortress. It reminded me of the ruin of some Moorish castle crowning a height in the midst of a lonely Spanish landscape. To this hill we gave the name of Cliff Castle.

'The prairies of these great hunting regions differed, in the character of their vegetation, from those through which I had hitherto passed. Instead of a profusion of tall flowering plants, and long flaunting grasses, they were covered with a shorter growth of herbage called buffalo-grass, somewhat coarse, but, at the proper season, affording excellent and abundant pasturage. At present it was growing wiry, and in many places it was too much parched for grazing.

'The weather was verging into that serene but somewhat arid season called the Indian summer. There was a smoky haze in the atmosphere that tempered the brightness of the sunshine into a golden tint, softening the features of the landscape, and giving a vagueness to the outlines of distant objects. This haziness was daily increasing, and was attributed to the burning of the distant prairies by the Indian hunting parties. We had not gone far upon the prairie before we came to where deeply-worn footpaths were seen traversing the country. Sometimes two or three would keep parallel to each other, and but a few paces apart. These were pronounced to be traces of buffaloes, where large droves had passed.'—p. 153.

Turn we now to a more refreshing scene:—'About ten o'clock in the morning we came to where this line of rugged hills swept down into a valley, through which flowed the north fork of the Red River. A beautiful meadow, about half a mile wide, enamelled with yellow autumnal flowers, stretched for two or three miles along the foot of the hills, bordered on the opposite side by the river, whose banks were fringed with cotton-wood trees, the bright foliage of which refreshed and delighted the eye, after being wearied by the contemplation of monotonous wastes of brown forest.

'The meadow was finely diversified by groves and clumps of trees, so happily disposed that they seemed as if set out by the hand of art. As we cast our eyes over this fresh and delightful valley, we beheld a troop of wild horses quietly grazing on a green lawn about a mile distant to our right, while to our left, at nearly the same distance, were several buffaloes, some feeding, others reposing and ruminating among the high rich herbage, under the shade of a clump of cotton-wood trees. The whole had the appearance of a broad, beautiful tract of pasture-land, on the highly-ornamented estate of some gentleman-farmer, with his cattle grazing about the lawns and meadows.'—p. 220.

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* The following, we presume, is the passage in Lawson to which Dr. Richardson alludes:—'He (*i. e.* the buffelo, as Lawson prints it) seldom appears amongst the English inhabitants, his chief haunt being in the land of *Messiasippi*, which is, for the most part, a plain country; yet I have known some kill'd on the hilly part of *Cape-Fair*-River, they passing the ledges of vast mountains from the said *Messiasippi* before they can come near us.' Opposite to this paragraph is the following marginal note:—'Two killed one year in Virginia at Appamaticks,' meaning, we suppose, on the Appomattox, a branch of the James River. (See Lawson's *History of Carolina*, p. 115.)

† *Carex* is the name of a genus of Cyperaceæ, a family of plants nearly allied to the grasses.

The American male bison, when at its full size, is said to weigh 2000 lbs., though 12 or 14 cwt. is considered a good weight in the fur countries. Dr. Richardson gives eight feet and a half as its length, exclusive of the tail, which is twenty inches, and upwards of six feet as its height at the fore-quarters. The head is very large, and carried low; the eyes are small, black, and piercing; the horns are short, small, sharp, set far apart, for the forehead is very broad, and directed outwards and backwards, so as to be nearly erect, with a slight curve towards the outward pointing tips. The hump is not a mere lump of fatty secretion, like that of the zebu, but consists, exclusive of a deposit of fat, which varies much in quantity, of the strong muscles attached to the highly-developed spinous processes of the last cervical and first dorsal vertebræ, forming fit machinery for the support and movement of the enormous head. The chest is broad, and the legs are strong; the hind parts are narrow, and have a comparatively weak appearance. The tail is clothed with short fur-like hair, with a long, straight, coarse, blackish-brown tuft at the end. In winter the whole body is covered with long shagged hair, which in summer falls off, leaving the blackish wrinkled skin exposed, except on the forehead, hump, fore-quarters, under-jaw, and throat, where the hair is very long and shaggy, and mixed with much wool. Catesby observes that on the forehead of a bull the hair is a foot long, thick and frizzled, and of a dusky black colour, that the length of this hair, hanging over their eyes, impedes their flight, and is frequently the cause of their destruction, but that this obstruction of sight is in some measure supplied by their good noses, which are no small safeguard to them. A bull, says he, in summer, with his body bare and his head muffled with long hair, makes a very formidable appearance. In summer the general colour of the hair is between dark-umber and liver-brown, and lustrous. The tips of the hair, as it lengthens in winter, are paler, and before it is shed in summer much of it becomes of a pale, dull, yellowish-brown. In the female the head is smaller, and the hair on the foreparts is not so long as it is in the male.

Congregating in vast herds, these animals are said to cover the wide-extended savannahs of the more southern districts of the north for miles in extent. 'Such was the multitude,' say Lewis and Clarke, speaking of an assemblage of bisons as they crossed the water, 'that although the river, including an island over which they passed, was a mile in length, the herd stretched, as thick as they could swim, completely from one side to the other.' The same travellers, speaking of another of these grand spectacles, say,—'If it be not impossible to calculate the moving multitude which darkened the whole plains, we are convinced that 20,000 would be no exaggerated number.' Catesby, after stating that they range in droves, feeding on the open savannahs morning and evening, says that in the sultry time of the day they retire to shady rivulets and streams of clear water gliding through thickets of tall canes. Dr. James had an opportunity of observing them on such occasions, and he thus describes their march:—'In the middle of the day countless thousands of them were seen coming in from every quarter to the stagnant pools;' and in another place he says, that their paths are as frequent, and almost as conspicuous as the roads in the most populous parts of the United States.

The bisons, in truth, are a wandering race, the motives of their restlessness being, either disturbance by hunters or change of pasture. After the fire has cleared the prairie of all the old herbage, the delicately tender grass which springs up in the room of the old wiry bents that fed the flame, offers the most grateful food to the migratory bisons: such spots are well-known to the hunter as points of attraction to these animals. In the winter, when the snow lies deep over the vegetation, they scrape it away with their feet to get at the grass.

Fierce and terrible are the fights among the bulls in the rutting season, and perilous is the condition of the man who then approaches them. For the greatest part of the year the bulls and cows live in separate herds; but at all seasons, according to Dr. Richardson, one or two old bulls generally accompany a large herd of cows.

These powerful beasts are in general shy, and fly from the face of man till they are wounded; they then become furious, and pursue their enemy with the most vindictive spirit, as we shall presently see; but we must first say a word or two on some of the different modes of hunting them. Du Pratz and Charlevoix give several particulars of the chace of these animals by the Indians. If the rifle be used the hunter is careful to go against the wind, for the sense of smelling is so exquisite in the bison that it will otherwise get scent of him and precipitately retire. If he gets within rifle-distance, he is careful so to take his aim that the beast may drop at once, and not be irritated by an ineffectual wound.

But the great hunting is, or rather was, somewhat after the manner of the Scottish 'tinchel.' A great number of men divide and form a vast square. Each band sets fire to the dry grass of the savannah where the herds are feeding. When the affrighted beasts perceive the fire approaching on all sides, they retire in confusion to the centre of the square, where the bands close upon them, and kill them as they are huddled together in heaps without hazard; 1500 or 2000 beeves have been given as the produce of such an expedition.

Captain (now Sir John) Franklin gives us the following information. After stating that the Stone Indians are so expert with the bow and arrow that they can strike a very small object at a considerable distance, and shoot with sufficient force to pierce through the body of a buffalo when near, he thus describes a buffalo or bison pound:—

'The buffalo pound was a fenced circular space, of about a hundred yards in diameter; the entrance was banked up with snow, to a sufficient height to prevent the retreat of the animals that once have entered. For about a mile on each side of the road leading to the pound, stakes were driven into the ground at nearly equal distances of about twenty yards; these were intended to represent men, and to deter the animals from attempting to break out on either side. Within fifty or sixty yards from the pound, branches of trees were placed between these stakes to screen the Indians, who lie down behind them to await the approach of the buffalo. The principal dexterity in this species of chase is shown by the horsemen, who have to manœuvre round the herd in the plains so as to urge them to enter the roadway, which is about a quarter of a mile broad. When this has been accomplished, they raise loud shouts, and, pressing close upon the animals, so terrify them that they rush heedlessly forwards towards the snare. When they have advanced as far as the men who are lying in ambush, they also rise, and increase the consternation by violent shouting and firing guns. The affrighted beasts having no alternative, run directly to the pound, where they are quickly despatched, either with an arrow or gun. There was a tree in the centre of the pound, on which the Indians had hung strips of buffalo flesh, and pieces of cloth, as tributary or grateful offerings to the Great Master of life; and we were told that they occasionally place a man in the tree to sing to the presiding Spirit as the buffaloes are advancing, who must keep his station until the whole that have entered are killed.'

The same author further proceeds as follows:—'Other modes of killing the buffalo are practised by the Indians with success; of these, the hunting them on horseback requires most dexterity. An expert hunter, when well mounted, dashes at the herd, and chooses an individual which he endeavours to separate from the rest. If he succeeds, he contrives to keep him apart by the proper management of his horse, though going at full speed. Whenever he can get sufficiently near for a ball to penetrate the beast's hide he fires, and seldom fails of bringing the animal down; though, of course, he cannot rest the piece against the shoulder, nor take a deliberate aim. On this service the hunter is often exposed to considerable danger from the fall of his horse in the numerous holes which the badgers make in these plains, and also from the rage of the buffalo, which, when closely pressed, often turns suddenly, and, rushing furiously on the horse, frequently succeeds in wounding it, or dismounting the rider. Whenever the animal shows this disposition, which the experienced hunter will readily perceive, he immediately pulls up his horse and goes off in another direction.' The reader will find some animated descriptions of such encounters in 'The Tour on the Prairies,' before alluded to.

'When the buffaloes are on their guard,' as Captain

Franklin observes, ‘horses cannot be used in approaching them; but the hunter dismounts at some distance and crawls in the snow towards the herd, pushing his gun before him. If the buffaloes happen to look towards him he stops, and keeps quite motionless, until their eyes are turned in another direction; by this cautious proceeding a skilful person will get so near as to be able to kill two or three out of the herd. It will easily be imagined this service cannot be very agreeable when the thermometer stands 30° or 40° below zero, as sometimes happens in this country.’

This chase of the bison is not unattended with danger, ‘for,’ says Catesby, ‘when wounded they are very furious, which cautions the Indians how they attack them in open savannahs, where no trees are to screen them from their fury. Their hoofs, more than their horns, are their offensive weapons, and whatever opposes them is in no small danger of being trampled into the earth.’

Dr. Richardson, in his ‘*Fauna Boreali Americani*,’ observes that the bisons are less wary when they are assembled together in numbers, and that they will then often blindly follow their leaders, regardless of, or trampling down, the hunters posted in their way.’ He further states that, though the gait of these animals may appear heavy and awkward, they will have no great difficulty in overtaking the fleetest runner, and gives the following account of the determined violence with which a wounded bison assails its enemy: ‘While I resided at Carlton-house,’ writes Dr. Richardson, ‘an accident of this kind occurred. Mr. Finnan M‘Donald, one of the Hudson's Bay Company's clerks, was descending the Saskatchewan in a boat, and one evening, having pitched his tent for the night, he went out in the dusk to look for game. It had become nearly dark when he fired at a bison-bull, which was galloping over a small eminence, and as he was hastening forward to see if his shot had taken effect, the wounded beast made a rush at him. He had the presence of mind to seize the animal by the long hair on its forehead as it struck him on the side with its horn, and, being a remarkably tall and powerful man, a struggle ensued, which continued until his wrist was severely sprained, and his arm was rendered powerless; he then fell, and after receiving two or three blows became senseless. Shortly afterwards he was found by his companions lying bathed in blood, being gored in several places, and the bison was couched beside him, apparently waiting to renew the attack had he shown any signs of life. Mr. M‘Donald recovered from the immediate effects of the injuries he received, but died a few months afterwards. Many other instances might be mentioned of the tenaciousness with which this animal pursues its revenge; and I have been told of a hunter having been detained for many hours in a tree by an old bull, which had taken its post below to watch him. When it contends with a dog, it strikes violently with its fore-feet, and in that way proves more than a match for an English bull-dog.’

The same writer says, that the favourite Indian method of killing the bison is by riding up to the fattest of the herd on horseback, and shooting it with an arrow; and he speaks of the imposing spectacle which is afforded when a large party of hunters are engaged in this way on an extensive plain, and of the skill and agility displayed by the young men on such occasions. The horses, it appears, seem to enjoy the sport as much as their riders, and are very active in eluding the shock of the animal, should it turn on its pursuer. It should be remembered, on such occasions, that, when the bison runs, it leans very much first to one side for a short time, and then to the other, and so on alternately.

Dr. Richardson also confirms Captain Franklin in the assertion, that the most generally practised plan of shooting the bisons is by crawling towards them from to leeward, and that in favourable places great numbers are taken in pounds.

Though the risk of the chase be considerable, the reward is great; for there are few animals that minister more largely to the wants and even to the comforts of man than the American bison. The horns are converted into powder-flasks; the hide, which, according to Catesby, is too heavy for the strongest man to lift from the ground, is very valuable, and is used for a variety of purposes. Purchas relates, that in old times the Indians made the best of targets of it; and Catesby says that they make their winter moccasins of it also, but that, being too heavy for clothing, it is not often put to that use. Others, however, assert that the Indians dress the skins with the hair on, and clothe themselves with them, and that the Europeans of Louisiana (Louisiana, in the older sense of the term before the purchase of it by the United States in 1803) use them for blankets, and find them light, warm, and soft. Dr. Richardson confirms the latter account, for he says in the work above quoted, ‘The fine wool which clothes the bison renders its skin, when properly dressed, an excellent blanket; and they are valued so highly, that a good one sells for three or four pounds in Canada, where they are used as wrappers by those who travel over the snow in carioles.’ Thomas Morton (in his *New English Canaan*, Amsterdam, 1637,) observes, that ‘their fleeces are very useful, being a kind of wolle, as fine almost as the wolle of the beaver, and the salvages do make garments thereof.’ Catesby says that the Indians work the long hairs into garters, aprons, &c., dyeing them into various colours; and, according to Pennant, the hair or wool is spun into cloth, gloves, stockings, and garters, which are very strong, and look as well as those made of the best sheep's wool. Pennant further says that the fleece of one of these animals has been found to weigh eight pounds, and quotes the authority of Governor Pownall for the assurance that the most luxurious fabric might be made of it. This assurance, it appears, was far from groundless, for Dr. Richardson informs us that the wool has been manufactured in England into a remarkably fine and beautiful cloth; and that in the colony of Osnaboyna, on the Red River, a warm and durable coarse cloth is formed of it.

The flesh of a bison in good condition, says the author last quoted, is very juicy and well-flavoured, much resembling that of well-fed beef. Others describe it as bearing the same relation to common beef that venison bears to mutton. The tongue, when well cured, is said to surpass that of the common ox as a relish. All concur in the praises of the delicious hump, rich, savoury, and tender. This is the fleshy part that covers the long spinous processes of the anterior dorsal vertebræ, and is called *bos* by the Canadian voyagers, and *wig* by the Orkney men in the service of the Hudson's Bay Company, according to Dr. Richardson, who says that much of the pemmican used by the voyagers attached to the fur companies is made of bison meat, procured at their posts on the Red River and Saskatchewan: he adds, that one bison-cow in good condition furnishes dried meat and fat enough to make a bag of pemmican weighing ninety pounds.

The fat buils yield a great quantity of tallow; and Du Pratz records that a hundred and fifty pounds weight have been procured from a single beast. Pennant says that these over-fed animals usually become the prey of wolves, for, by reason of their great unwieldiness, they cannot keep up with the herd; and, on the authority of Du Pratz, gives the following account of their sagacity in defending themselves against the attacks of their fierce persecutors:— ‘When they scent the approach of a drove of those ravenous creatures, the herd flings itself into the form of a circle: the weakest keep in the middle, the strongest are ranged on the outside, presenting to the enemy an impenetrable front of horns: should they be taken by surprise, and have recourse to flight, numbers of the fattest or the weakest are sure to perish.’ Dr. Richardson, however, speaking of the numerous wolves on the sandy plains which, lying to the eastward of the Rocky Mountains, extend from the sources of the Peace and Saskatchewan rivers towards the Missouri, says, that there bands of them hang on the skirts of the buffalo herds, and prey upon the sick and straggling calves, but that they do not, under ordinary circumstances, venture to attack the full-grown animal. As a proof of this he adds, that the hunters informed him that they often saw wolves walking through a herd of bulls without exciting the least alarm, and that the marksmen, when they crawl towards a bison for the purpose of shooting it, occasionally wear a cap with two ears, in imitation of the head of a wolf, knowing from experience that they will be suffered to approach nearer in that guise.

The grisly bear is one of the most formidable enemies of the American bison; and the strongest bull goes down before him. [See BEAR.]

The Indian is too wild in his habits to submit to the fetters which an attempt to domesticate animals would impose upon his liberty; a child of the wilderness, he depends on his bow or his rifle for his subsistence, and wanders free. It is not, therefore, surprising that no attempt should have been made by the aboriginal inhabitants to reduce the bison to obedience. Catesby, however, says that these animals have been known to breed with tame cattle that were become wild, but that the calves being so too, were neglected, 'and though,' he continues, 'it is the general opinion, that if reclaiming these animals were impracticable (of which no trial has been made), to mix the breed with tame cattle would much improve the breed, yet nobody has had the curiosity nor have given themselves any trouble about it.' Pennant states that the experiment has been made, and that it has failed, for he thus writes in his Arctic Zoology:—'Attempts have been made to tame and domesticate the wild bison, by catching the calves and bringing them up with the common kind, in hopes of improving the breed. It has not yet been found to answer: notwithstanding they had the appearance for a time of having lost their savage nature, yet they always grew impatient of restraint, and, by reason of their great strength, would break down the strongest inclosure, and entice the tame cattle into the corn-fields. They have been known to engender together, and to breed; but I connot learn whether the species was meliorated by the intercourse.

A very fine American bison bull was shown a few years ago in this country as the 'bonassus,' and under that name found its way into the epilogue of the Westminster Play as one of the wonders of the day. It was afterwards purchased by the Zoological Society of London; but it had been enfeebled by confinement and disease, and died soon after the Society became possessed of it. The Hudson's Bay Company supplied its place by presenting a young cow, which has lived for some years in its present quarters at the Garden in the Regent's Park.

BISSA'GOS, THE, or BIJUGA ISLANDS, lie on the west coast of Africa, between 11° 40′ and 10° 50′ N. lat., and 15° 30′ and 16° 30′ W. long., opposite the mouth of the river Bulola or Rio Grande. They form a group of about twenty islands, enclosed by a reef. Most of them are inhabited, but some are nearly bare rock, and only visited occasionally. The largest, Marshi, is above fifteen miles long. The islands Carache, Corbele, Cazegut, Gallinas, Orango, Canyabac, and Bulama are much smaller. On Bulama the English formed a settlement in 1792; but it was abandoned in 1793, on account of its unhealthiness.

These islands, which are of volcanic origin, have an excellent soil, composed chiefly of decomposed lava and vegetable matter. They are mostly covered with wood, but there are some natural savannahs, and a few clear spaces, affording ample pasturage for innumerable elephants, deer, buffaloes, and other wild animals. The inhabitants cultivate some maize, and have plantations of bananas and palms; but their chief wealth consists of cattle and goats. It is remarkable that the hippopotamus is found in the straits which divide the islands of Canyabac and Bulama from the continent; there is no fresh-water river within several miles.

The inhabitants, called Bijuga, are a warlike and treacherous people, as Captain Beaver learned by experience. They are always armed, generally with a musket, knife-dagger, spear, and sometimes a sword. The women do the labour of domestic economy, except that the males climb the palms to get the calabashes for collecting the palm-wine, and bring them away. The men attend only to hunting and fishing: they frequently rob when they can find their way across to the main. The two sexes eat separately.

(*Life of Captain Beaver*, by Smyth; and Capt. Belcher, in the *Journal of the Geogr. Society*.)

BISSEXTILE, or BISSEXTUS DIES, the name given in the Roman Calendar, after its reformation by J. Cæsar, to the intercalary day which was inserted every fourth year between the 24th and 25th of February. The 24th of February was expressed according to the Roman reckoning 'sexto Calendas Martii,' *i. e.* the sixth day before the Calends, or first of March. When the intercalary day was inserted, it was also called 'sextò Calendas Martii;' and as the name was thus repeated, this day was called the *bissextus dies*, or the sixth day twice over. In legal reckoning as to the birth of a child, the 24th and following day in the bissextile year were considered in the Roman law as one day. (See *Dig.* 4. tit. 4. 3.) In Greek, this day was called *ἐμβόλιμος ἡμέρα*, which signifies the same as intercalated day. By the statute 21 Hen III., the bissextile day and the day immediately preceding were to be considered legally as one day (computetur dies ille et dies proxime precedens pro uno die). At present February has twenty-nine days in leap year. [See Year.]

BI'STON (entomology), a name given by Dr. Leach to a genus of moths of the family *Geometridæ*. The principal distinguishing characters of this genus are as follows:—Palpi short, and three-jointed; antennæ rather long, and distinctly pectinated in the males, each joint being furnished with a ciliated branch, and these branches longest on the central joints (in the females these branches are wanting, or nearly so); body thick; wings present in both sexes, not very thickly covered with scales, and hence slightly transparent, especially in the females. The larva has ten legs, and is elongate, cylindrical, and tuberculated, and has the head more or less notched in front; it assumes the pupa state underground at the roots of trees.

There appears to be an analogical resemblance between these moths and the *Notodontidæ*, their larvæ showing that they are not otherwise allied. The imago state of the species however may be distinguished by the different texture of the wings, and structure of the antennæ.

Three species of this genus have been discovered in this country:—*B. prodromaria*, the oak-beauty; *B. betularius*, the pepper-moth; and *B. hirtarius*, the brindled-beauty. The first of these has the antennæ bipectinated to the apex, and the two latter have the antennæ simple at the apex, in the males:—

B. prodromaria has the wings of an ash colour, or approaching to white, finely sprinkled with black: each of the upper wings has two transverse bent fasciæ of a brown colour, more or less margined with black, and the under wings have one fascia of the same description. When the wings are expanded it measures from an inch and a half to two inches in width.

The caterpillar feeds upon the oak, poplar, &c. The moth is rare, but is found in the month of March in the trunks of oak trees in the neighbourhood of London and elsewhere.

B. betularius has received the name of pepper-moth from its being of a white colour, and, as it were, peppered with black almost uniformly over the wings.

This moth is about the same size as the last, and is not uncommon in the month of June in woods near London, and in other parts. Its caterpillar feeds upon the oak, willow, poplar, elm, &c.

B. hirtarius is of a brown colour, dotted with grey, with three or four transverse, black, bent lines on each wing, and a whitish fascia near the hinder margin: it is common amongst poplar and lime-trees, and is about an inch and three quarters in expanse. In the females the wings have a greenish hue.

BISTORT. [See Polygonum.]

BISTRE, a brown pigment made from the root of different kinds of wood, but that of beech is preferred by some who have given directions for making it.

In the 'Handmaid to the Arts,' vol. i. p. 176, the following process is recommended:—Put the soot of any wood (of beech when it can be procured) into water, in the proportion of two pounds to a gallon, and boil them for half an hour. Then, after the fluid has stood some time to settle, but while it is yet hot, pour off the clearer part from the earthy sediment at the bottom; and if on standing any longer it form another earthy sediment, repeat the same method; but this should be done only while the fluid remains hot. Evaporate the fluid to dryness; and what remains will be good bistre, if the soot was of the proper kind. It is then mixed with a little gum-water and made into small cakes.

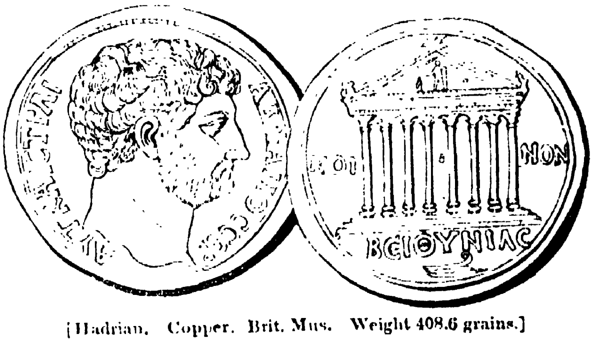
According to Dr. M'Culloch, bistre is a very variable article, and is often unfit for use, and he concludes from his experiments, that this is owing to its too near alliance to tar, and hence the disagreeable gumminess which it frequently possesses. He has proposed a process for removing the defects which he has pointed out, by preparing it from the pitch of distilled wood. (*Trans. Geol. Soc.* vol. ii. p. 1.)

BISTRITZ (BESZTERCZE, BIDEKE), a circle in Transylvania, bounded on the north by Hungary and on the east by Galicia: it contains an area of about 1200 square miles, rather less than that of Gloucestershire, and the population, which in 1791 amounted to 55,000, is at present about 107,500. It lies at a considerable elevation above the level of the sea, and the larger portion of it is covered with the Carpathian mountains. The principal river by which it is watered is the 'Greater Szamos,' which rises within the borders of the circle below Mounts Wurful-Omului and Lopadna, and receives the Szalva, near the town of that name. Among the minor streams are the Golden Bistritz, which springs from the Kühhörnel and falls into the Screth—this stream brings down gold-dust; and the Great Bistritz, which flows from Mount Piatra Dorni and joins the Szamos, not far from the town of Bistritz. The climate, particularly in the more elevated districts, is inclement; and even in the vale of Rodna strawberries do not ripen until the month of August. The principal products of this circle are grain, fruits, vegetables, flax, wine, and large quantities of timber. Cattle are but partially reared; on the other hand Bistritz abounds in game and fish, and contains gold, silver, lead, iron, salt, garnets, chalcedonies, magnetic-stone, marble, lime, fire-stone, magnesia, and a few mineral waters. The circle is divided into two minor circles, and contains one town and fifty-five villages. The town of Bistritz (or Besztercze), a free royal town, on the river of the same name, is called by the Saxon settlers, who constitute the majority of the population in these parts, 'Nösen,' or 'Nösenstadt.' It is situated in a long and delightful valley, and has three gates of entrance, two suburbs chiefly tenanted by Wallachians, a Protestant church within the walls, and a Protestant gymnasium, a Roman Catholic church and two schools, two hospitals, a monastery of Minorite friars, and one of Piarists, about 800 houses, and 6000 inhabitants. The environs produce wine; potashes are made here; and the town has large cattle-fairs. Near it are the remains of an antient castle, once the residence of the illustrious family of the Hunyads. 47° 5′ N. lat., 24° 32′ E. long.

BITHY'NIA, a country of Asia Minor, including part of the Turkish district of Khodavendkiar and the peninsula of Khodjaili. We cannot exactly determine the antient boundaries, for it is uncertain whether the Mariandyni are to be included in this country. If not, Bithynia was bounded on the west by the river Rhyndacus, on the east by the river Sangarius, or Sagaris, on the north and north-west by the Euxine and the Propontis, and on the south by Phrygia and Galatia. It had the advantage of an extensive line of sea-coast, indented by two deep bays, the Cian and the Astacene. Xenophon, who was in the country probably more than once, describes the part along the Euxine in the neighbourhood of Calpe as covered with inhabited villages, and fertile in every kind of natural produce except olives. (*Anabas.* vi. c. 4, § 5, 6.) Dionysius Periegetes (v. 793) also says that the Bithyni inhabited a fertile country (*λιπαρὴν χθόνα ναιετάουσι*). Mr. Kinneir found it a beautiful and romantic country, abounding in vines and forests; and Mr. Browne (Walpole's *Turkey*, ii. 108) speaks in the highest terms of the plenty which prevailed near Brusa when he was there. The forests consist principally of oak, occasionally intermingled with beech, chestnuts, and walnuts. But this country, one of the most interesting in Asia Minor, is yet comparatively unknown. In the southern part, the immense mass of Olympus, at the base of which Brusa stands, occupies a large part of the country, and includes between two of its branches the extensive plain of Brusa. The summit of Olympus is a grey granite; the sides are marble. Still farther to the west two branches of Olympus form the boundary of the extensive basin of Lake Apollonna: one of these branches, the eastern, separates the basin of this lake from the plain of Brusa. The northern part of Bithynia, which consists of the peninsula, is occupied by a chain of hills running westward from the banks of the Sangarius, and terminating on the channel of Constantinople. Between this range and the lake of Izneck, the antient Ascania, is a plain country which contains the lake of Sabanja or Nicomedia. From Guevé, where there is a fine bridge over the Sangarius, to Sabanja, the country is described as an alluvium, with sand and small hills of sandstone: from Sabanja to Ismit (Nicomedia) a plain, with sand and forests: the rest of the line to Scutari through Gebizé is mainly calcareous rock of different kinds. The basin of Lake Ascania appears to be bounded on the south by one of those branches of Olympus which enclose the plain of Brusa, and on the north by the high land which fills up the promontory between the Astacene and Cian gulfs: the maps mark the Lake Ascania as communicating by a stream with the Cian gulf; but our maps of this country are not to be trusted. The Sangarius, which probably formed the eastern boundary of Bithynia, flows through an immense plain which spreads out S.W. of Guevé: before it enters the Euxine it traverses the high lands which occupy the northern peninsula and terminate at the channel of Constantinople. (Fontanier, *Voyages en Orient*.)

The principal cities in this district were Astacus on the gulf of Astacus, which was founded at the beginning of the seventeenth Olympiad by the Megarians, who were afterwards joined by some Athenian settlers; Calchedon, or Chalcedon (Bekker, *Anec.* iii. 1207; the coins have the former: see Eckhel, *Doctr. Num.* ii. p. 411), opposite to Byzantium, was also founded by the Megarians (Olympiad 26, 2), and was the birth-place of the great sophist Thrasymachus; Prusa ad Olympum, now called Brusa, or Broussa, was founded, according to Pliny, by Hannibal, according to Strabo by a Prusias who lived in the time of Crœsus; it was the capital of the Ottoman Empire before the capture of Constantinople, and is still one of the most flourishing towns of Anatolia. Of its warm baths some are chalybeate and others sulphureous; they were celebrated in antient times (Athenæus, 43, a) and are still much used. [See BRUSA.] Cius, founded by the Milesians, and restored by Prusias after its destruction by Philip in B.C. 203, was by him called Prusias; Nicæa, on the Lake Ascania, is celebrated as the birth-place of Hipparchus the astronomer and Dion Cassius the historian; and Nicomedia, founded by Nicomedes I., B.C. 264, was the birth-place of Flavius Arrianus.

The earliest inhabitants of Bithynia seem to have been the same with those of the neighbouring districts of Mysia and Phrygia (Hom. *Iliad*, B. 812, N. 792); they were called Bebryces. But we have positive information that they were afterwards conquered or displaced by a Thracian immigration from the European side of the Propontis (Herod. i. 28, vii. 75); the invading tribe was called the Thyni, or Bithyni, and there is reason to believe that they were intimately connected with a European race of that name (Xenoph. *Anab.* vii. 2, 22), although it is the opinion of a learned writer that the word must be understood in a geographical, not an ethnographical sense. (*Philol. Mus.* i. p. 112.) They appear to have had chiefs of their own from the earliest times, who held a subordinate authority, even under the Persian government. Thus Dydalsus and Boteiras reigned between the commencement of the Peloponnesian war and 376 B.C. (Clinton, *Fast. Hel.* iii. p. 411, n. c.) Bithynia was conquered by Crœsus, and passed with the rest of his dominions into the hands of the Persians. When Darius divided his empire into twenty satrapies (Herod. iii. 90-95) the Bithynians formed one with the Asiatic Hellespontians, Phrygians, Paphlagonians, Mariandynians, and Syrians, and were rated at 360 talents. This satrapy was called the Dascylian, from Dascylium, the residence of the satrap on the Propontis.



[Hadrian. Copper. Brit. Mus. Weight 408.6 grains.]

[Vespasian. Copper. Brit. Mus. 235 grains.]

The following is a list of the satraps drawn up by Dr. Arnold (on Thucyd. viii. 5):—Mitrobates (Herod. iii. 120), Orœtes (iii. 127), and Œbares (vi. 33) in the reign of Darius I.; Megabates and Artabazus, the son of Pharnaces (Thucyd. i. 129), in the reign of Xerxes; Pharnaces (Thucyd. ii. 67, vi.) in the reign of Artaxerxes Longimanus; and Pharna[illegible]us, the son of Pharnaces, in the reign of Darius Nothus. Bithynia was taken from the Persians by Alexander the Great, but his general, Calantus, was defeated by Bas, the son of Boteiras, a native prince, and Bithynia became an independent state.

Mr. Clinton (*Fasti Hellenici*, &c., Append. c. 7, p. 410) has made such a complete collection of the passages in antient writers relating to the kings of Bithynia, that we cannot do better than refer our readers to his work for all particulars respecting the history of this district during the period in which it had a separate existence. Bas was succeeded in 326 B.C. by his son Zipœtes, who carried on a successful war with Lysimachus, and founded the city Zipœtion. His eldest son, Nicomedes I., came to the throne about 278 B.C. His succession was disputed by his brother Zybœtes, and he called in the Gauls to support his claim; who also seem to have assisted his son Zeilas in recovering his inheritance from his step-mother, Etazeta. Zeilas or Zelas (not Zielas, as Clinton writes it) reigned till about 228 B.C., when he was succeeded by his son, Prusias I. This prince is described as a man of courage and activity, and indeed gained his name of 'the lame' from a wound which he received while mounting a scaling ladder at the siege of Heraclea; but his memory is in some degree tarnished by his connexion with the death of the great Hannibal, who sought refuge at his court. Hannibal died in 183 B.C., and Prusias II. probably came to the throne in 180 B.C., or thereabouts. He married the sister of Perseus, king of Macedon, between whom and the Romans he endeavoured to mediate. (Liv. xliv. 14.) He visited Rome, 167 B.C., along with his son, Nicomedes, by whom he was murdered, 149 B.C. Little is known of Nicomedes II. He was applied to for succours during the Cimbrian war by Marius, and died probably in the year 91 B.C. His son, Nicomedes III., was expelled by Mithridates, but was restored by the Romans, and expelled again, 88 B.C. At the peace in 84 B.C., he was a second time restored, and, dying in 74 B.C., he left his kingdom to the Romans as his heirs.

Bithynia as a Roman province is thrown quite into the shade till the time of Trajan, when Pliny the younger presided over it, and from his epistles we derive a good deal of information respecting its condition at that time. In the division of Augustus it was one of the Proconsulares Provinciæ, *i.e.*, one of those which were left to the senate and the people (Dio. 53, 12, Strabo, i. 17, Tacitus, *Annal.* xvi. 18); but Pliny's appointment was due to his intimacy with the Emperor, with whom he corresponded familiarly on the affairs of the province. He found near Nicomedia a foss commenced by a king of Persia probably for the purpose of irrigating the neighbouring lands, and he endeavoured to induce the emperor to turn it into a canal between the lake of Nicomedia and the sea: Trajan seems to have been inclined to adopt his suggestion. (*Epist.* x. 50, 69.) In his 46th *Epist.* l. 10, he asks Trajan for an 'aquilex' to complete the aqueduct commenced by the Nicomedians, and appears in general to have been a great benefactor of the province.

It was on the plain of Nicæa that the Sultan Solyman cut to pieces the army of Peter the Hermit, and its proximity to Constantinople has made this district the scene of many important events in modern history.

BITON, a Greek writer about the time of Archimedes. A work by him on the construction of catapultæ (*κατασκευαὶ πολεμικῶν ὀργάνων καταπελτικῶν*) is extant, in the collection of Thevenot.

BITONTO, a town in the province of Bari, in the kingdom of the two Sicilies, with a population of about 4000 inhabitants. It lies on the road from Canosa to Bari, twelve miles W. by S. of Bari, and about seven miles from the nearest point of the Adriatic coast. The country around is very fertile. [See BARI.] Bitonto is the antient Butuntum or Butuntus of the Antonine Itinerary. It is known in modern history for a battle fought near it, 25th May, 1734, between the Spaniards, commanded by the Duke of Montemar, and the Austrians, commanded by the Prince of Belmonte. The Spaniards won the battle, which gave them the possession of the kingdom of Naples, where the Bourbon dynasty was thus established. Montemar was created by King Charles Duke of Bitonto. (Botta, *Storia d'Italia.*)

BITTER PRINCIPLE. When indigo and some other vegetable products are acted upon by nitric acid a substance is produced, which, before its properties had been accurately examined, was called, on account of its taste, bitter principle. This is now, however, known to be a peculiar acid, and is called carbarotic or nitropicric acid, and will be mentioned hereafter under the former name.

Besides this artificial product, there exist a vast number of vegetables, most or all of which are used in medicine, that contain bitter extractive matter, and from which a peculiar bitter principle may in many cases be separated: thus gentian root yields a crystallizable and extremely bitter matter; but it has not been ascertained that this is the only bitter contained in this root; it is called gentianine; that of senna is termed catharten, of colocynth, colocynthen, &c. These and others of the same class will be mentioned under their respective letters.

BITTERSPAR. Considerable uncertainty will be found to exist in the use of this term in the various mineralogical works, owing to a very close connection existing between the carbonates of lime, magnesia, protoxides of iron, manganese and zinc, and the compounds which these carbonates form with one another. There is consequently some difficulty in determining the precise limits which divide one species from the other. According, however, to the most general acceptation it must be considered as denoting the crystallized varities of Dolomite, and therefore its essential chemical constitution may be considered as containing one equivalent of carbonate of lime united with one equivalent of carbonate of magnesia, which expressed in symbols is

$$\dot{\mathrm{Ca}}\,\ddot{\mathrm{c}} + \dot{\mathrm{Mg}}\,\ddot{\mathrm{c}}$$

That exactly the above compound should rarely occur, is, from what we know of the principles of isomorphism, no longer a matter of any surprise, since either of the elements may be partially replaced by the other, or by the protoxides of manganese and iron, which is indeed usually the case. On the supposition of the above composition, 100 parts should be found to contain

Of Carbonate of lime	54·3
Carbonate of magnesia . . .	45·7

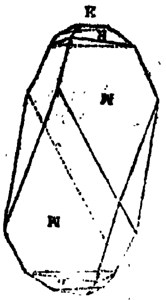
while the analysis of varieties from Tyrol by Klaproth give the composition thus·

Carbonate of lime . . .	54·18	. . 52
Carbonate of magnesia . .	45·82	. . 45
Carbonate of iron and manganese	0	. . 3
	100	100

The quantity of iron and manganese is, however, at times much greater, Berthier having obtained as much as 14 per cent. of the former, and six of the latter. Particular attention is requisite to distinguish this species from calcareous spar, carbonate of lime, on the one hand, and magnesitspar or talcspar, the carbonate of magnesia, on the other, two species to which the bitterspar is most nearly allied, and between which it is situated, not only in its chemical constitution, but in almost all of its other properties. Thus for example they are all three cleavable in directions parallel to the faces of a rhombohedral, the angle in the obtuse edges of which in the purest specimens

Of Calcspar is . . .	105° 5′
Bitterspar . . .	106° 15′
Talcspar . . .	107° 22′

In the general character of the crystals also the bitterspar is intermediate between the other two; for while in calcspar we find an almost infinite variety of forms and combinations, with a most decided tendency to the occurrence of the six-sided regular prism, and a remarkable complexity and variety of shapes, talcspar on the contrary is as remarkable for its simplicity, the faces of its cleavage rhombohedron being the only ones which have as yet ever been observed to occur in this mineral. Bitterspar, on the contrary, holds as it were a mean between these two extremes, presenting us, in addition to the planes of the cleavage rhombohedron, the faces of the first obtuser, and first and second acuter rhombohedron, together with the planes truncating the terminal angle; the two acuter rhombohedron occur alone as well as that of cleavage. The principal combinations are seen in the accompanying figure, where the faces marked E represent the plane truncating the terminal angle, R the cleavage and its second acuter; the faces R are frequently not present. The crystalline faces, particularly those of the cleavage rhombohedron, are frequently rounded, by which the crystals assume the form of a lens. In hardness it is also situated between calcspar and talcspar, its number being 3·5 to 4, while



calcspar is 3, and talcspar 4 to 4·5. The specific gravity is 2·8 to 3. It is sometimes colourless, but frequently presents tints of pink, yellow, brown and green, derived from the presence of iron and manganese. It possesses various degrees of transparency, and has a somewhat pearly lustre, whence it has been called pearlspar.

BITTER SWEET. [See SOLANUM.]

BITTERN (zoology), *Botaurus* (Brisson), a subgenus of the family of herons, or *Ardeïdæ*. The following are the characters which principally distinguish the bitterns from the rest of the family:—Bill strong, about as long as the head, compressed, and higher than it is broad; mandibles equal in length, the upper being rather the deepest, and slightly curved from the base to the point; edges of both mandibles somewhat incurved, very sharp, and finely serrated towards the point. Legs, as compared with those of others of the family, rather short. Neck also comparatively short, covered on its sides and front with long loose feathers which can be erected at pleasure, and on the back (of the neck) with down, the long loose feathers of the side meeting behind and covering the downy part in certain attitudes, as, for example, when the bird passes through the reeds and rushes.

The bitterns comprehended under Bonaparte's subgenus *Botaurus* are widely diffused, but, being solitary birds, haunting wooded swamps or reedy marshes, where they generally lie hid all day, and coming forth to feed at night, they are seldom seen. There are several species of Bonaparte's subgenus, and of these the *Night Heron*, or *Qua Bird* (*Ardea Nycticorax*, Linn., *Nycticorax Europæus*, Stephens), is found both in the old and new world. Bonaparte notes it in his *Specchio Comparativo* as common in the spring and autumn near Rome, and in Philadelphia during the summer. It has been shot in England; and there are not wanting those who assert that it has been recognised in all the quarters of the globe. Le Vaillant states that he saw it in Africa. It occurs in the catalogue of birds which were collected on the Ganges, between Calcutta and Benares, and in the Vindhyian Mountains, between the latter place and Gurrah Mundela, on the Nerbudda, by Major James Franklin, and in Colonel Sykes's catalogue of birds observed in the Dukkun (Deccan). [See NYCTICORAX.]

As an example of the subgenus, the *Common Bittern*, or *Bittour*, *Botaurus stellaris*, Steph., *Ardea stellaris*, Linn., *Uccello lepre* and *Trombutto* of the Italians, *Rohrdommel* of the Germans, and *Butor* of the French, may be taken. The provincial English names of Mire-drum, Bull of the Bog, &c., will occur to many of our readers as being indicative, in common with some of the foreign ones, of the bellowing or drumming noise for which the bird is so famous. This deep note of the 'hollow-sounding bittern' is exerted on the ground at the breeding season, about February or March. As the day declines he leaves his haunt, and, rising spirally, soars to a great height in the twilight. Willughby says that it performs this last-mentioned feat in the autumn, 'making a singular kind of noise nothing like to lowing.' Bewick says that it soars, as above described, when it changes its haunts. Ordinarily it flies heavily, like the heron, uttering from time to time a resounding cry, not bellowing, and then Willughby, who well describes the bellowing noise of the breeding-season, supposes it to be the night-raven, at whose 'deadly voice' the superstitious wayfarer of the night turned pale and trembled. 'This, without doubt,' writes Willughby, 'is that bird our common people call the night-raven, and have such a dread of, imagining its cry portends no less than their death or the death of some of their near relations; for it flies in the night, answers their description of being like a flagging collar, and hath such a kind of hooping cry as they talk of.' Others, with much reason, consider the Qua-bird, above-mentioned (which utters a loud and most disagreeable noise while on the wing, conveying the idea of the agonies of a person attempting to vomit), to be the true night-raven.

The food of the bittern consists, for the most part, as might be suspected from its haunts, of aquatic animals. Pennant says that frogs are its principal food, adding, 'not that it rejects fish, for small trouts have been taken out of its stomach.' In Graves's *British Birds* it is stated that in one dissected in 1811, the intestines were completely full, containing the remains of four eels, several water-newts, a short-tailed field-mouse, three frogs, two buds of the water-lily, and some other vegetable substances.

The rude nest of the bittern is generally formed of reeds, sticks, &c., on some 'tump,' to use Montagu's expression, in a reedy marsh or well-clothed rushy moor, and contains four or five pale-green eggs. The time of incubation is about twenty-six days.

In the palmy days of falconry the bittern afforded the best of sport. We find it mentioned in the 'Flights to the field, called great flights.' 'There is yet,' says Turbervile, 'another kinde of flight to the fielde, which is called the great flight, as to the cranes, wild geese, bustard, birde of Paradise, bittors, shovelars, hearons, and many other such like.' Accordingly we find it protected by the severe penalties of the stat. 25 Hen. VIII. c. 11, confirmed by stat. 3 and 4 Edw. VI. c. 7. One year's imprisonment, and a forfeiture of 8*d*. for each egg, was the punishment awarded for those who destroyed or took away the eggs of the 'bittour.' When the hawk had 'bound with' the bittern and brought it down, it was the duty of the falconer to make in apace to rescue her, by plunging the bill of the bittern into the ground, to prevent injury to the hawk; for when wounded the bittern is not daunted, but lies watching his opportunity to dart his spear-like bill at his enemy as soon as he comes within his reach, and, as he generally aims at the eye, he should be approached with the greatest caution. The modern sportsman should beat for these birds with pointers or very close-hunting spaniels; for they are moved with as much difficulty as a jack-snipe, and, like that bird, will often lie till they are almost trodden on, rather than take wing.

The bittern was well known to the antients, and there can be little doubt that it is the *ἀστερίας*, *astérias*, (ἐρωδιός, *ródius*,) of Aristotle. (*Hist. Anim.* book ix. c. xviii.) In the same chapter its sluggishness, and the fable of its origin from slaves metamorphosed into birds are mentioned. Aristotle observes further that the *φώϋξ* especially strikes at the eyes; and in the edition of Belon (1557), 'enrichy de quatrains,' we find the following verse below the figure of the 'butor:'—

'En un Butor Phoix, pour sa paresse
Fut par les dieux changé divinement,
Un paresseux aussi communement,
Est dit Butor, pour son peur d'alegresse.'

The flesh of the bittern was formerly in high esteem (in the reign of Henry VIII. it was valued at 1*s*.), nor is it despised in the present day; when well fed, its flavour somewhat resembles that of the hare, nor is it rank and fishy, like that of some of its congeners. The long claw of the hind toe is much prized as a tooth-pick, and, in the olden time, it was thought to have the property of preserving the teeth.

A paragraph in the last edition of Pennant, signed J. L., written probably by Latham, states that this bird 'is said to inhabit the greater part of Africa; and is certainly found on the coast of Barbary, at the Cape of Good Hope, and also in India and China.' Selby observes that its geographical distribution 'seems confined to Europe, extending nearly to the confines of Asia;' but it was in the collection formed in the neighbourhood of Trebizond by Keith E. Abbott, Esq., and presented to the Zoological Society by that gentleman. Colonel Sykes notes it as rare in Dukkun (Deccan), and Mr. Gould as inhabiting the three continents of the Old World. In England inclosure and drainage have made the bittern a very scarce bird, and its capture is no longer an ordinary event.

In size the common bittern is less than the common heron, being about two feet and a half in length. The bill is about four inches long, brown above, greenish below; irides yellow; feathers on the crown black, shot with green, those of the hinder part of the head, neck, and breast long and loose; general colour of plumage dull, pale yellow, variegated with spots and bars of black; tail short; legs moderate, pale-green; toes and claws long and slender, middle claw serrated on the inner edge, most probably to aid it in securing its slippery prey.

[Botaurus stellaris.]

BITTERS, a collective term applied to those vegetable substances the most prominent sensible quality of which is *bitterness*. 'Bitterness,' says Dr. Cullen, 'is a simple perception that cannot be defined, but must be referred to a matter of experience in which mankind are commonly agreed.' It was at one time attempted to refer this quality to an hypothetical principle, which was termed *bitter principle*; but it was soon perceived that substances having a bitter taste were indebted for it to very different sources. In the progress of science this term was limited to such natural non-azotized substances as possessed the general character of *extractive*, which was designated bitter extractive, and subdivided into mild bitter, sharp bitter, and narcotic bitter extractive. More recently, the pure non-azotized substances, to which many plants are indebted for their bitterness, have been obtained separately, and even crystallized, such as gentianine, salicine, &c. But bitterness is not confined to vegetable substances destitute of azote, but is possessed by many alkaloids, into the composition of which azote enters, such as quinia, strychnia, brucia, &c. As some of these constitute valuable medicinal agents, as well as the non-azotized substances, it seems improper to adopt a chemical arrangement of these articles as the foundation of our observations. Any bitter substance taken into the mouth produces instantly a sensation which on the first trial is seldom relished, but to which the taste soon becomes reconciled, so that most persons can continue the use of bitter longer than sweet substances. This impression on the organs of taste seems to have little general effect beyond causing a secretion of saliva in most individuals, and it is not till they reach the stomach that they produce much effect. Upon the mucous membrane and muscular fibres of the stomach, as well as upon the neighbouring glands associated with it in the function of digestion, especially the liver and pancreas, they produce a very decided effect. Gummy matter, which forms a considerable portion of most vegetable food, does not easily submit to the action of the digestive organs, but frequently passes through the intestines very little changed. But when associated with bitter extractive it is soon digested, and yields a large quantity of nourishment. Saccharine matter or sugar is not, when existing alone in vegetable food, adequate to the support of the animals which feed upon it, but they become plump and healthy if any bitter matter exist in the plants along with the sugar, or if they have access to other plants almost exclusively bitter, to which they eagerly resort. Where there is a deficiency of bitter matter, and the food is of a very watery kind, such as grows in wet pastures, the cattle suffer from various diseases, especially from the rot.

That bitters develope and heighten the vitality of the stomach seems clear, and in popular language they are called *stomachics*. But they also cause an increased secretion of the juices of the stomach essential to digestion, and also of the bile and pancreatic juice. The secretions are also improved in quality, and when previously excessive may even be diminished in quantity, as a greater degree of firmness and tone is imparted to the whole intestinal canal, by which hasty and imperfect secretion is prevented. The beneficial effects of this improved condition of the stomach are extended to the rest of the system by two means, the first, sympathy, which is speedy in its action; the second, more slow, being the result of the improved blood obtained from better digestion being distributed through the system. The nature of sympathy is little understood, but the effects of that disposition or consent of parts to act in concert or harmony, which physiologists have agreed to term sympathy, are sufficiently manifest. The stomach has been called the centre of sympathy, from its influence upon every organ of the body, and of most organs of the body upon it, according to their respective condition. But by a well-ascertained law of the system the sympathies of the stomach are greatest with those parts the constituents of which are similar to its own: hence mucous surfaces and the muscular fibres throughout the whole body participate in its changes more extensively than other parts. Hence by improving the state of the stomach and intestinal canal every muscle and every artery, for they as well as the heart are muscular tubes, acquire an increased tone, by which the elasticity and energy of the system is greatly augmented. By the improved digestion of the food, a better kind of blood containing more fibrine and red particles is circulated, and conveyed to every part of the body, by which not only better materials are supplied to the glands, out of which to form the secretions, but from which a firmer and better flesh is deposited; and thus the individual finds his strength much increased. The nervous system likewise partakes of the benefit, and the mind is in general clear and active.

Such being the common effect of the use of bitters, some writers regard them as synonymous with tonics; but as all tonic medicines are not bitter, such, for example, as arsenic, this view cannot be taken, though many of the most valuable tonics are bitter. They have this property in common with most tonics: that their continued use seems to impair the power of the stomach, and leave it in a state of greater weakness than at first. Hence their employment should only be temporary, to raise the powers of digestion when they have been enfeebled by previous disease or excessive fatigue. There exists another reason for caution in their use: they have a great tendency to increase the quantity of blood, both by augmenting the appetite, owing to which more food is taken, and from which a more nutritive and stimulating chyle is extracted, by which a plethoric state of the blood-vessels is induced, and all the attendant evils brought about. These cautionary remarks apply as well to malt liquors as to those bitters unassociated with any nutritive matter which are only employed as medicines. The full and often bloated habit of body of those who daily consume a large portion of strong ale or porter sufficiently demonstrates the consequences of such indulgences. Besides, hops possess, like many other bitters, more or less of a narcotic principle, so that the purest beer produces an injurious effect on the brain, if taken in considerable quantity. The sleepiness which follows its use shows this, as well as the fate of those who are addicted to it. 'In seven cases out of ten, malt-liquor drunkards die of apoplexy or palsy.' A very moderate use, during dinner, of a beer not containing so much nutritious matter, or too much hop, is allowable to most persons, but it should be thoroughly fermented and purified, and not be hard or stale.

Persons naturally of a full habit of body should carefully avoid the stronger ales and porters. These remarks do not apply to the medical employment of strong ales as a tonic or restorative during convalescence from acute diseases, as few agents so speedily recruit the exhausted powers, or replace the wasted flesh of the sufferer. Neither are they intended to prohibit mothers while nursing from making a moderate use of them, since at that time there is a demand upon the system for an extraordinary quantity of highly nutritive blood, and the infant generally removes any superfluous quantity; but an excessive use of very strong beer is not less hurtful to the mother than the child.

Bitters may be advantageously employed by the inhabitants of cold and damp regions to prevent the action of these causes of disease. These agents generally injure the function of digestion, both by their immediate action on the skin, and also, from abstracting the animal heat, on the nervous system: hence the prevalence of intermittent fevers or agues in such districts. Now these may be warded off by maintaining a healthy action of the digestive organs and of the skin. Some preparation of a pure bitter, such as gentian, or of an aromatic and bitter united, such as chamomile with sweet flag-root, or infusion of milfoil or yarrow, may be had recourse to for this purpose; but if there be obstruction of the liver with ague-cake, which is the enlarged and hardened spleen, dandelion, having beef-tea poured upon it, and used as a soup, is preferable, in which way it is extensively employed by the Dutch. The Swiss peasant, inhabiting high stations on the Alps, which are almost constantly wrapped in a thick and penetrating mist, uses a spirit distilled from gentian, called 'bitter snaps.' In the West Indies, where languor of the system, with weakness of the digestive organs, is produced by the excessive heat, the appetite is restored and the stomach invigorated by taking before dinner a few drops in a glass of water, of Stoughton's elixir, which is made of gentian, serpentaria, orange-peel, and sweet flag-root; and in America, the infusion or tincture of serpentaria is sometimes taken every morning in damp aguish situations to prevent intermittents. Such employment of bitters, within certain limits, is wise and proper.

During spring and autumn, when the sources of intermittent fevers are most abundant, the use of such bitters as those above mentioned would be very serviceable in the case of weak and feeble persons residing in aguish districts; but there may be weakness of the digestive organs, and general debility, accompanied with a state of stomach which forbids the employment of bitters or any other tonic. Inflammation of the stomach, from its slightest to its most intense degree, is always attended with a sense of weakness, which prompts many persons to betake themselves to bitters or other stimulating articles, which never fail to aggravate the disease. Such cases demand a widely opposite course of treatment.

There is another malady to which feeble persons are subject, the evils of which are much lessened by the use of bitters. Worms are rarely developed except in persons with impaired digestion, in which case bitters form, along with proper dietetical means, the most appropriate instruments of cure. [See ANTHELMINTICS.] Much diversity of opinion exists with respect to the propriety of using bitters by persons subject to gout. Of late years the once famous Portland gout-powder has fallen greatly into disuse, partly because a more certain remedy has been discovered, and partly because one of the charges brought against it had some foundation in truth. It was said to cure the gout, but in a short time to carry off the patient by apoplexy. Now such a result was certainly the indirect effect of this tonic powder; for, as by the immunity from paroxysms of gout, which the use of it for a time conferred upon the patients, they were enabled to indulge their increased appetites, a plethoric state of the system was brought on, which in many cases induced apoplexy, in which disease gout has a tendency to terminate. This powder consisted of serpentaria, gentian, germander, and lesser centaury.

Where the disposition to gout is very strong, some of the most experienced practitioners condemn the use even of ale. Still it must be allowed that many persons who have no disposition to excessive indulgence in the good things of the table, have such slow and troublesome digestion as to render tonic and aromatic stimulants useful; but it is best to unite these with some gentle laxative, by which the plethoric tendency is lessened. For this purpose, orange-peel, rhubarb, and magnesia, united in equal portions, form a fitting combination. Gout and stone in the bladder are so closely allied, and the means which are useful in repelling them are so similar in many instances, that they are naturally treated of together: the origin of both is depraved digestion. In full livers this is accompanied with deficient secretion of urine, and a tendency to the formation of lithic acid, by which red gravel is voided. Here bitters with alkalies are eminently useful, such as quassia with lime-water, or colchicum with magnesia. In very feeble persons, and also after the long continuance of the lithic acid diathesis, and the irritation of a stone in the bladder, an opposite state prevails, viz., an alkaline state of urine, in which it is excessive in quantity, pale, and on standing some time becomes covered with an iridescent pellicle, or lets fall a white, generally amorphous, sediment. In such a case bitters are extremely useful, especially infusion of quassia with phosphate of iron, or infusion of quassia with nitric acid; the extract of *Arctostaphylos Uva Ursi* (bear-berry).

In phthisis pulmonalis bitters are sometimes of service, such as the bear-berry and the Iceland moss (*Cetraria Islandica*), in which the bitter principle should be retained.

In some cases of diarrhœa, from loss of tone of the intestines, bitters are of the greatest service, provided no inflammatory condition of the mucous membrane exist, such as quinia, infusion of cusparia, or even strychnia, perhaps the most intensely bitter substance with which we are acquainted.

The most eligible form for exhibiting bitters is in powder or infusion, but where the taste is objected to, an extract may be given formed into pill. Decoction is a bad form, especially for aromatic bitters. Aromatic principles frequently conceal the disagreeable taste of bitters.

BITU'MEN, a Latin word used by Tacitus, Pliny, and other Roman writers. A considerable number of combustible mineral substances are sometimes arranged under the head of bitumens; but their properties vary greatly in some respects, as, for example, with regard to solidity, fluidity, and colour. The term bitumen is however usually applied to two varieties, namely asphaltum, a harder one, already treated of, and a softer kind called elastic bitumen, which we shall now describe. As to other bituminous bodies, see HATCHETINE, MALTHA, NAPHTHA, and PETROLEUM.

Elastic bitumen, sometimes called fossil caoutchouc, is a rare mineral product, which has hitherto been found in three places only: 1st. in the Odin mine, near Castleton in Derbyshire, in a secondary limestone, accompanied by asphaltum, calcareous spar, fluor, blende, galena, and pyrites; 2dly. in a coal-mine of Montrelais, a few leagues from Angers in France, it occurs among quartz and calcareous crystals, in the veins of grit of the coal formation; 3dly. in a coal-mine near South Bury in Massachussets, United States.

Elastic bitumen possesses the following characters: it is brown, or blackish brown, and translucent in small portions it is soft and elastic like caoutchouc, but sometimes it is as hard as leather: it has the property like caoutchouc of effacing pencil marks. Its density varies from 0·9053 to 1·233. It fuses readily, and at a higher temperature it takes fire and burns with a sooty flame: it sometimes leaves 1-5th of its weight of ashes, composed chiefly of silica and peroxide of iron. If the Derbyshire elastic bitumen be subjected to distillation, it yields acidulous water, and volatile oil, resembling that of naphtha in smell: the oil is neither acid nor alkaline, slightly soluble in alcohol, but readily so in æther; after the distillation of the water and oil, a brown viscid mass remains in the retort, which is insoluble in water or alcohol, but is dissolved by æther and by potash. If the distillation be longer continued, an empyreumatic oil resembling that of amber is obtained, and a black shining coal remains.

When the elastic bitumen of Montrelais is similarly treated, there is obtained a yellow, bitter fetid oil, which is lighter than water and insoluble in alcohol, but it dissolves in the alkalis.

Elastic bitumen swells when put into oil of turpentine or of petroleum; æther and oil of turpentine when boiling extract a kind of soft resin from the English and French bitumen, and this remains after the evaporation of the solvent: this resin is of a brownish-yellow colour, is bitter and inelastic; its weight is nearly half that of the bitumen employed.

It is but slightly soluble in alcohol, but readily in potash: it is inflammable, and burns with a smell of petroleum: that portion of the bitumen which is insoluble in the æther and oil of turpentine, is a grayish dry mass, resembling paper; it burns with difficulty, and carbonizes; potash dissolves only a part of it. If after separating these two principles, they are mixed together, the bitumen does not regain its elasticity.

Concentrated sulphuric acid does not act upon elastic bitumen; but when long boiled with nitric acid it yields resin, tannin, and a little nitroperic acid. According to the analysis of M. Henry, jun., the elastic bitumen consists of

	English.	French.
Carbon . . .	52·250	58·260
Hydrogen . .	7·496	4·890
Azote . . .	0·154	0·104
Oxygen . . .	40·100	36·746
	100·	100·

Berzelius remarks, that the difference in the quantity of hydrogen in these specimens is so considerable, that it is surprising their properties are not more dissimilar.

BITUMENS, MEDICAL USES OF. Though the substances popularly termed bitumens, in the most extensive use of the term, differ, as stated above, yet as in medical writings the term is restricted to certain forms of these, a slight notice of their uses and modes of action may here be most appropriately introduced. In this limited sense bitumens comprise naphtha, petroleum, maltha, and asphaltum, which are all transition states of the same thing; viz., from naphtha the most fluid, to asphaltum the most solid. These appear to be all mixtures in different proportions of naphtha (strictly so called, *naphtha montana*), paraffine, kreosote, acetic acid, and of some substance which easily becomes black by the action of the air. The chief constituent principles are carbon and hydrogen. They may be considered mineral-empyreumatic oils, and in their action on the human system they are similar to balsams and resins. Their sphere of action does not seem to extend beyond the spinal chord and ganglionic system; they do not affect the brain or its nerves, except indirectly in case of an over-dose, through the vitiated and imperfectly decarbonized blood. The functions dependent for their perfection on the nerves of organic life are more powerfully affected by these agents than by any other empyreumatic oil. The secretions of the mucous membranes, of serous membranes, and glandular structures, as well as the skin, are promoted by their influence. The process of absorption is also increased, and a more copious secretion of urine takes place. They are better suited for slight and chronic affections of the nerves of organic life, than for acute or violent disorders of them. They have been employed in loss of power, cramps, and chronic affections of a nervous but obscure nature; also in affections of the mucous membranes of the lungs, when balsamic medicines are proper, such as humid catarrh, and some of the forms of asthma arising from nervous debility.

Likewise in similar affections of the bladder, such as atony of that organ, and loss of power of its sphincter muscle, *catarrhus vesicæ, &c.* They have also been used in gouty and rheumatic affections, especially when these threaten to terminate in stiffness or loss of power. Lastly, they have been employed as a remedy against worms, especially the tape-worm, in which their efficacy is increased by combination with assafœtida. Externally they are used as embrocations in rheumatic and gouty affections, and also to allay cramps and spasms. They are also serviceable as an external application to chilblains and some other ulcers resulting from an imperfect circulation and low degree of nervous power.

Their employment would be very improper during any inflammatory state of the system, or increased sensibility of the nerves. An over-dose is decidedly poisonous, causing general excitement, tremblings of the limbs, cramps, convulsions, laborious respiration, a venous state of the blood, great debility, and death: or recovery may take place, if by means of respiration and a copious secretion of bile and urine, the blood can be freed from its excess of carbon. Even after a favourable issue appears likely to occur, death may take place at the end of two or three days. A very large dose may very speedily cause death. [See Kreosote. Paraffine. Petroleum.]

BIVOUAC (written also **BIHOUAC, BIOUAC**), is a term in military tactics probably derived from the German verb *bewachen*, or *beywachen*, signifying to watch over: it was originally applied to the strong parties of cavalry which were posted beyond the lines of intrenchment in order to watch the motions of the enemy, and prevent any attempt to approach the army by surprise; and, because the soldiers thus employed passed the night in the open air, the term was subsequently used to denote the condition of any body of troops when in the field, and not regularly encamped under tents.

Formerly, no army served during a campaign without being well provided with every material necessary for its protection from the inclemency of the weather; but, since the Revolution, the French soldiers have, except on a few occasions, dispensed with tents. At the periods in which military operations were suspended, they were quartered in towns and villages; and while on active service, they had only the occasional cover afforded by such buildings as happened to be situated in the district which they occupied. In all their great expeditions they remained *au bivouac*, as it was called; and the rapidity of their motions was due, in a great measure, to their freedom from the *impedimenta* with which armies were formerly encumbered. The important successes which so long attended the armies of France were, no doubt, the cause of their example, in this respect, being followed by their opponents.

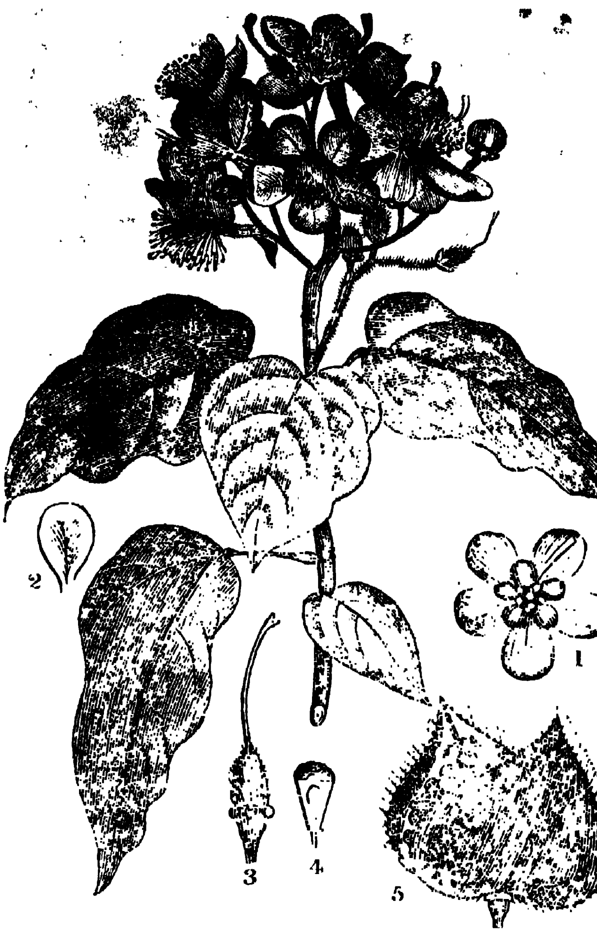
The carriage of an extensive tent equipage is necessarily attended with serious inconvenience on any change of position, but the removal of this evil must, it is feared, be accomplished at the expense of the comfort and health of the soldier. During the summer season, and in the south of Europe, it may be indifferent whether or not the men pass the night under a roof; and indeed in those climates and in the summer season the open air may be preferred; but the cold winds and rains which are so frequently experienced in the spring and autumn in northern climates must induce painful and dangerous diseases, which render the men at an early period of their service unfit for the active duties of war.

To lessen the severity of the bivouac, fires are kept up during the night with wood obtained from the neighbouring forests or villages: the arms being piled along the line, the troops place themselves in their rear in groups, each about its proper fire, which is lighted in any convenient situation, the men sitting or lying upon straw if it can be procured, and endeavouring to shelter themselves from wind or rain by means of boughs planted in the ground, or by boards formed into a roof, according to circumstances. The bivouac of an army making a rapid retreat before an enemy is that in which the most disastrous consequences follow, both to the soldier and to the people of the country along the line of march: a complete disorganization of the army too often takes place, and lamentable excesses are committed by men suffering the severest distresses from hunger and fatigue. In this state the soldier not only takes from the peasant what is requisite to satisfy his own necessities, but wantonly destroys every article of property which he cannot carry away; fruit trees are cut down, growing corn trampled under foot, and houses are demolished or set on fire to give cover or warmth by night. The retreat of the French army from Moscow will be for ever remembered as an example exhibiting every species of misery which can be inflicted and suffered under the consequences of a rash and ill-planned expedition.

When a position is to be occupied for several days, it may happen that the men find means to construct rude huts for their protection with such materials as are at hand; and, in an extremely inclement season, they are usually cantoned in such towns or villages as are in their neighbourhood. They then light their fires in the streets, in gardens, or in barns; certain spots having been previously appointed as alarm posts, about which, on signals being given, the different corps may assemble in order to form the line of battle, and act immediately as circumstances may require. Permanent cantonments for the winter are of this nature, and they are secured against surprise by outposts constantly maintained at proper distances about them.

BIXA, a West Indian genus of plants, which produces the substance called Arnotto, and gives its name to the natural order Bixineæ; a small group in the vegetable kingdom, principally characterized by having numerous hypogynous stamens, fruit with parietal placentæ, and leaves marked with transparent dots. The only species of any general interest either in the genus or natural order is the *Bixa Orellana*, a native of the Malayan Archipelago, but now extremely common in the West Indies, where it is cultivated in rich moist soil by the sides of rivers.

This plant forms a small tree with deep-green, shining, heart-shaped leaves, and clusters of purplish flowers, which are succeeded by capsules of a heart-shaped form, covered with stiffish bristles, and opening into two valves which contain, attached to their middle, a number of seeds covered with a soft, sticky, vermilion-coloured rind. It is the latter which furnishes the arnotto of commerce. According to Fée, this substance is obtained by heaping up the seeds in water for several weeks or months, and afterwards pressing them, when the colouring matter separates and is afterwards precipitated in the water. Or the pulp is separated by washing and maceration, and the colouring matter precipitated by the aid of an acid, and caught upon fine sieves. Independently of the use of arnotto for staining cheese and butter, the Indians paint their persons with it, and thus, it is said, destroy the subcutaneous vermin with which they are infested. It acts as a purgative taken internally; but its reputed powers as an antidote to the poison of the cassava are imaginary.



[Bixa Orellana.]

1, a flower seen from beneath; 2, a petal; 3, an ovary with style and stigma; 4, a seed cut vertically, showing the embryo; 5, a ripe fruit.

BIYSK, BÜSK, or **BISKAYA-KREPOST,** the chief town of a circle of the same name in the Siberian province of Tomsk, and the principal fortress of the Kolyvan line of defences: it is situated upon the Biya, not far from its junction with the Katunya, and contains about 2100 inhabitants. It lies, according to Stein, in 52° 30′ N. lat., and 84° 50′ E. long. The Biya (a word signifying master) flows out of Lake Telezkoe or Altin-Nor, *i. e.* the Golden Lake, in the province of Kolyvan, and, after a course of about 140 miles, forms a junction with the Katunya (wife or woman), and is thence designated the Ob for the remainder of their united course. The sources of the Biya lie in Soongary, a Chinese province in Mongolia.

BIZARI, PETER, a considerable poet and historian of the sixteenth century, was born at Sasso-ferrato, near Ancona, in Umbria or Spoleto, within the estates of the Church. He was one of those who, having embraced the doctrines of the Reformation, were forced to leave their native country to escape the cruelties which followed on the establishment of the Inquisition in the Popedom. After spending some time at the court of London, he went to Scotland, where he was honourably received by Queen Mary and the Earl of Murray, who had then the chief direction of the government. Bizari informs us that Mary presented him with a chain of gold; and he has addressed one of his works to that princess. (*Varia Opusc.* fol. 28 A.) At what time he was in Scotland does not precisely appear; but in a poem inscribed *Ad Jacobum Stuardum Scoticum*, he celebrates the victory which that nobleman gained over the Earl of Huntly, in such terms as to lead to the inference that he was then in Scotland. (*Ibid.* fol. 93 A.) The battle of Corrichie, in which Huntly fell, was fought in October, 1562.

Andrew Melville, the celebrated Scottish reformer, when at the University of St. Andrew's, was introduced to Bizari, who expressed his high opinion and warm regard for him in a dodecastichon of elegant Latin poetry, which, with several of Bizari's minor poems, is inserted in Gruter's *Deliciæ Poetarum Italorum*.

Mackenzie (*Lives of Scots Writers*, vol. iii. p. 99), and, after him, Chalmers (*Biographical Dictionary*), have confounded Bizari with a person whom they describe as Peter or Patrick Bissat, Bisset, or Bissart, born and educated in Scotland, and afterwards professor of the canon law in the University of Bologna, and the author of 'P. Bissarti opera omnia, viz. Poemata, Orationes, Lectiones feriales, et lib. de Irregularitate,' Venetiis, 1565. Chambers (*Biographical Dictionary of Eminent Scotsmen*, vol. i. p. 209, Glasgow, 1835) follows his predecessors in their blunders, and gravely tells us that the said Peter or Patrick Bissat or Bissart was 'a descendant of Thomas Bissat or Bissart, who was Earl of Fife in the reign of David II.' Now it is true that in that reign the widowed Countess of Fife espoused a Sir Thomas Bysset, who thereupon had a charter from the crown of the earldom of Fife, to be held by him and his heirs male through the countess, but the knight died without such issue.

Bizari was the author of several works of merit:—1. 'Varia Opuscula,' containing various tracts and speeches, and two books of poems, published at Venice in 1565. 2. 'A History of the War in Hungary, with a narrative of the principal events in Europe from 1564 to 1568,' Lyons, 1569: this work was afterwards translated by the author from the Italian, in which it first appeared, into Latin, and published in 1573. 3. 'An Account of the War of Cyprus between the Venetians and Selim of Turkey,' in Latin, Bâle, 1573; Antwerp, 1583. 4. 'Epitome Insignium Europæ Historiarum,' Bâle, 1573. 5. 'Annals of Genoa, from 1573 to 1579,' published in Latin at Antwerp the latter year. 6. 'Reipublicæ Genuensis leges novæ, nunc in lucem editæ,' 1576: this work was reprinted by Grævius in his 'Thesaurus Antiq. Italiæ,' tom. I.; as was also 7. 'Dissertatio de Universo Reipublicæ Genuensis statu et administratione,' Antwerp, 1579. 8. 'A History of Persia,' in Latin, 1583; in speaking of which, Boxornius calls Bizari 'gravissimum rerum Persicarum scriptorem.' 9. Giacobilli, in his 'Catal. Script. Prov. Umbriæ,' makes mention of another work of Bizari's, entitled 'De Moribus Belgicis.'

(See Mazzuchelli, *Gli Scrittori d'Italia*, tom. iv. p. 1295; Tiraboschi, *Storia della Litteratura Italiana*, tom. xi. p. 1009; Verdier, *Bibl. Françoise*, tom. v. p. 236; *Dict. Univ. Historique*; and M'Crie's *Life of Melville*, vol. i. pp. 16, 17.)

BLACK. [See Colours, or Light.]

BLACK-JACK, a name by which zinc-blende is commonly known to the English miners.

BLACK LEAD. [See Plumba'go.]

BLACK PIGMENTS. [See Carbon; Charcoal, Animal.]

BLACK, JOSEPH, a physician and an eminent chemical philosopher, was born in France on the banks of the Garonne in the year 1728. His father, John Black, who resided chiefly at Bordeaux, was a native of Belfast in Ireland, but of a Scotch family, as was also his mother.

In the year 1740, when he was twelve years old, Joseph Black was sent to Belfast, that he might have the benefit of a British education, and six years afterwards he was sent to the University of Glasgow, where he continued his studies with great assiduity and success, devoting his attention chiefly to physical science. Having chosen the profession of medicine, he went to complete his medical studies to Edinburgh in 1750 or 1751, having previously had the advantage of attending Dr. Cullen's lectures on chemistry at Glasgow. This science, in which he was destined to act so important a part, strongly excited his attention, and he pursued it experimentally with great vigour and commensurate success.

The chemical subject which seems first peculiarly to have excited his attention was connected with his profession as a physician, and is thus detailed by Dr. Robison in the preface to Dr. Black's 'Lectures on the Elements of Chemistry:'—

'It was the good fortune of chemical science that at this very time the opinions of professors were divided concerning the manner in which certain lithontriptic medicines, and particularly lime-water, acted in alleviating the excruciating pains of the stone and gravel. The students usually partake of such differences of opinion, and are thereby animated to more serious study, and science gains by their emulation. This was a subject quite suited to the taste of young Mr. Black, one of Dr. Cullen's most zealous and intelligent chemical scholars. It was indeed a most interesting subject, both to the chemist and the physician. All the medicines which were then in vogue, as solvents of the calculous concretion, resembled more or less the *lapis infernalis*, and the common ley of the soap-boilers, two substances so terribly acrimonious, that in a very short time they will reduce the firmest and most solid parts of the animal body to a mere pulp. Therefore, while they were powerful lithontriptics they were hazardous medicines, if in unskilful hands. All of them seem to derive their efficacy from quick-lime, and this derives its power from the fire. Its wonderful property of becoming intensely hot, and even sometimes ignited, when moderately wetted with water, had long engaged the attention of chemists. It was therefore very natural for them to ascribe its power to igneous matter imbibed from the fire, retained in the lime, and communicated by it to alkalies and other substances, which it renders so powerfully acrid. Hence undoubtedly arose the denomination of *causticity*, given to the quality so induced. I see that Mr. Black had entertained the opinion, that caustic alkalies acquired igneous matter from quicklime. In one memorandum he hints at some way of catching this matter as it escapes from lime, while it becomes mild by exposure to the air, but on the opposite blank page is written—'Nothing escapes, the cup rises considerably by absorbing air.' A few pages after this, he compares the loss of weight sustained by an ounce of chalk when calcined, with its loss when dissolved by spirit of salt. Immediately after a medical case is mentioned which I know to have occurred in November, 1752. From this it would appear that he had before this time suspected the real nature of these substances. He had then prosecuted his inquiry with vigour: the experiments with magnesia are soon mentioned.

These laid open the whole mystery, as appears by one other memorandum:—'When I precipitate lime by a common alkali there is no effervescence: the air quits the alkali for the lime, but it is not lime any longer, but c. c. c. It now effervesces, which good lime will not.' He had now discovered that the terrible acrimony of these powerful substances is their native property, and not any igneous property derived from the lime, and by the lime from the fire. He had discovered that a cubic inch of marble consisted of about half its weight of pure lime, and as much air as would fill a vessel holding six wine gallons, and that it was rendered tasteless and mild by this addition, in the same manner as oil of vitriol is rendered tasteless and mild in the form of alabaster, by its combination with calcareous earth.'

Having thus most satisfactorily proved to what the causticity of lime and the alkalies was owing, he made it the subject of his inaugural thesis, which he entitled 'De Acido a cibis orto, et de Magnesiâ.' This occurred in 1754, when the degree of doctor of medicine was conferred upon him by the University of Edinburgh. In the following year he published his 'Experiments on Magnesia, Quicklime, and other Alkaline Substances.' In this the views which had been but little more than indicated in his thesis were detailed at greater length, and the whole subject more fully developed.

Dr. Black's experiments and opinions respecting causticity gave rise to considerable discussion; and they were especially attacked by Dr. Meyer of Osnaburg, who had published a considerable volume on quicklime, in which he professed to explain all the phenomena by the action of an *acidum pingue*, formed in the lime during calcination, and consisting of igneous matter in a certain inexplicable combination with other substances. Though this work was replete with injudicious experiments and incorrect reasoning, it gave Dr. Black considerable uneasiness; and without fresh experiments, he answered and refuted all the objections which had been urged against him.

In 1756, Dr. Cullen having removed to Edinburgh, Dr. Black was appointed professor of anatomy and lecturer on chemistry in the University of Glasgow, where he continued till 1766, when he was appointed to the chemical chair in Edinburgh. Between the years 1759 and 1763 he matured the speculations on heat which had for a long period occasionally occupied his thoughts. Boerhaave has recorded an observation made by Fahrenheit, that water would become considerably colder than melting snow, without freezing, and would freeze in a moment if disturbed, and in the act of freezing emitted many degrees of heat. This notice seems to have supplied Dr. Black with some vague notion that the heat received by ice during its conversion into water was not lost, but was contained in the water. The experiments by which Dr. Black demonstrated the existence of what he termed *latent heat* in bodies, are extremely simple and easy of execution. He remarks ('Lectures,' vol. i. p. 119) that 'melting ice receives heat very fast, but the only effect of this heat is to change it into water, which is not in the least sensibly warmer than the ice was before.' 'A great quantity therefore of the heat, or of the matter of heat, which enters into the melting ice, produces no other effect but to give it fluidity, without augmenting its sensible heat; it appears to be absorbed and concealed within the water, so as not to be discoverable by the application of a thermometer.'

'In order to understand,' he continues, 'this absorption of heat into melting ice, and concealment of it in the water, more distinctly, I made the following experiments:—The plan of the first was, to take a mass of ice, and an equal quantity of water, in separate vessels of the same size and shape, and as nearly as possible of the same heat, to suspend them in the air of a warm room, and by observing with a thermometer the celerity with which the water is heated or receives heat, to learn the celerity with which it enters the ice; and the time necessary for melting the ice being also attended to, to form an estimate from these two data of the quantity of heat which enters into ice during its liquefaction.' He exposed in the same room a given quantity of water frozen into ice, and an equal quantity of water at 33°, and as the result of the experiment he states, 'that it was necessary that the glass with the ice receive heat from the air of the room during twenty-one half-hours, in order to melt the ice into water, and to heat that water to 40° of Fahrenheit. During all this time it was receiving the heat, or the matter of heat, with the same celerity (very nearly) with which the water-glass received it during the single half-hour in the first part of the experiment. For, as the water received it with a celerity which was diminishing gradually during that half-hour, in consequence of the diminution of difference between its degrees of heat and that of the air; so the glass with the ice also received heat with a diminishing celerity, which corresponded exactly with that of the water-glass, only that the progression of this diminution was much more slow, and corresponded to the whole time which the water surrounding the ice required to become warmed to 40° of Fahrenheit. The whole quantity of heat therefore received by the ice-glass during the twenty-one half-hours was twenty-one times the quantity received by the water-glass during the single half-hour. It was therefore a quantity of heat which, had it been added to the liquid water, would have made it warmer by $(40-33)\times 21$, or 7×21, or 147°. No part of this heat however appeared in the ice-water, except 8°; the remaining 139°, or 140° had been absorbed by the melting ice, and were concealed in the water into which it was changed.'

He then mentions that another obvious method of melting ice occurred to him, in which it would be still more easy to perceive the absorption and concealment of heat, by the action of warm water. For the details of these very simple yet most satisfactory experiments, we must content ourselves with referring to Dr. Black's 'Lectures,' vol. i. p. 123. In page 157 of the same volume he proves that in the case of boiling the heat absorbed does not warm surrounding bodies, but converts the water into vapour, and he adds, 'in both cases, considered as the cause of warmth, we do not perceive its presence: it is concealed, or latent, and I gave it the name of *latent heat*.' It was indeed by Dr. Black's doctrine respecting the nature of steam that Mr. Watt was led to his great improvements in the steam-engine, a sufficient proof, if indeed proof were required, of the immense importance of his discoveries.

The 'Philosophical Transactions' for 1775 contain a short paper by Dr. Black, giving an account of some experiments, showing that recently-boiled water begins to freeze more speedily than water that has not been boiled, and he explains the cause of its so doing. The only other paper written by Dr. Black was published in the second volume of the 'Transactions of the Royal Society of Edinburgh.' It is an analysis of the Geyser and Rikum springs in Iceland, in which he found a considerable quantity of silica.

Dr. Black was never married. He died on the 26th of November, 1799, in the seventy-first year of his age. Dr. Robison (Preface to *Lectures*, p. lxii.) says, 'As to the manner in which Dr. Black acquitted himself in his public character of a professor, I need only say that none contributed more largely to establish, and support and increase the high character which the University of Edinburgh has acquired. His talent for communicating knowledge was not less eminent than for observation and inference from what he saw. He soon became one of the principal ornaments of the University; and his lectures were attended by an audience which continued increasing from year to year, for more than thirty years. It could not be otherwise. His personal appearance and manners were those of a gentleman, and peculiarly pleasing. His voice in lecturing was low, but fine; and his articulation so distinct, that he was perfectly well heard by an audience consisting of several hundreds. His discourse was so plain and perspicuous, his illustration by experiment so apposite, that his sentiments on any subject never could be mistaken even by the most illiterate; and his instructions were so clear of all hypothesis or conjecture, that the hearer rested on his conclusions with a confidence scarcely exceeded in matters of his own experience.'

BLACK-ASSIZE, the name given to a fatal assize held in 1577 in the old town-hall of Oxford, situated at that time in the yard of the castle. Holinshed and Stow make particular mention of it in their *Chronicles*, but the best account of it is in Anthony à Wood's *History and Antiquities of the University*, published by Gutch, 4to. Oxford, 1796, vol. ii. p. 188, when noticing the trial of one Rowland Jencks, a book-binder, for sedition. He says—'The assizes therefore being come, which began the 4th of July, and continued two days after in the court-house at the castle-yard, the said Jencks was arraigned and condemned in the presence of a great number of people to lose his ears. Judgment being passed, and the prisoner taken away, there arose such an infectious damp or breath among the people, that many there present, to the apprehensions of most men, were then smothered, and others so deeply infected that they lived not many hours after. The persons that then died,' he adds, 'and were infected by the said damp, when sentence was passed, were Sir Robert Bell, baron of the Exchequer; Sir Nicholas Barham, sergeant-at-law; Sir Robert D'Oyley, the high-sheriff; Hart, his under-sheriff; Sir William Babyngton, Robert D'Oyley, Wenman, Danvers, Fetiplace, and Harcourt, justices of the peace; Kerle, Greenwood, Nash, and Forster, gentlemen; besides most of the jury, with many others that died within a day or two after. Above 600 sickened in one night, as a physician of Oxford (Georg. Edrycus in *Hypomnematibus suis in aliquot libros Pauli Æginetæ*, edit. Lond. 1588, lib. 2) attested; and the day after, the infectious air being carried into the next villages, there sickened 100 more. The 15th, 16th, and 17th days of July sickened also above 300 persons, and within twelve days' space died 100 scholars, besides many citizens. The number of persons that died in five weeks' space, namely from the 6th of July to the 12th of August (for no longer did this violent infection continue), were 300 in Oxford, and 200 and odd in other places: so that the whole number that died in that time were 510 persons, of whom many bled till they expired. Some,' Wood says, 'left their beds, occasioned by the rage of their disease and pain, and would beat their keepers or nurses, and drive them from their presence. Others ran about the streets and lanes in a state of phrenzy, and some even leaped headlong into deep waters. The physicians fled, not to avoid trouble,' he says, 'but to save themselves and theirs.' The heads of houses and doctors almost all fled; and there was not a single college or hall, but had some taken away by this infection. 'The parties,' Wood says, 'that were taken away by this disease were troubled with a most vehement pain of the head and stomach, vexed with the phrenzy, deprived of their understanding, memory, sight, hearing, &c. The disease also increasing, they could neither eat nor sleep, nor would suffer any attendants to come near to them. At the time of their death they would be very strong and vigorous, but if they escaped it, then they were to the contrary. It spared no complexion or constitution, and the choleric it chiefly molested. That which is most to be admired is, that no women were taken away by it, or poor people, or such that administered physic, or any that came to visit. But as the physicians were ignorant of the causes, so also of the cures of this disease.' Holinshed says that no child died of this infection.

It seems more than probable that the distemper which arose on this occasion, was a fever originating in the poisonous condition of the adjoining gaol, where the prisoners had been long, close, and nastily kept. Wood mentions a similar event at Cambridge, at the assizes held in the castle there in the time of Lent, 13 Henry VIII., A.D. 1521, where the justices, all the gentlemen, bailiffs, and most who resorted thither, took such an infection, that many of them died, and all almost that were present sickened, and narrowly escaped with their lives.

Father Sanders (in his book *De Schismate Angl.* lib. iii.), noticing the black-assize of Oxford, called it 'ingens miraculum,' and ascribed it as a just judgment on the cruelty of the judge for sentencing the bookbinder to lose his ears.

A contemporary account of the black-assize is given in a letter from Sergeant Fleetwood, recorder of London, to Lord Burleigh, dated 30th July, 1577, printed in Ellis's *Original Letters Illustrative of English History* (second series, vol. iii. p. 54); and another contemporary account, in Latin, from the Register of Merton College, was communicated to the Royal Society by professor Ward in 1758, and is printed in the Philosophical Transactions for that year, vol. l. part ii. p. 699.

(See also Holinshed's *Chron.* edit. 1587, vol. ii. p. 1270; Stow's *Annals*, edit. 1631, p. 681; and Pointer's *Antiquities and Curiosities of Oxford*, 8vo. Lond. 1749, p. 171.)

BLACKBIRDS (zoology), the English name for birds of the first tribe of the genus *Turdus*, Linn., belonging to the fifth family (*Les Turdusinées*) of Cuvier's second order (*Les Passereaux*), according to Lesson's arrangement.

But the term *Blackbird* is more exclusively applied in England to that well-known native songster, *Merula vulgaris* of Ray, *Turdus Merula* of Linnæus, the *Schwarzdrossel* and *Schwarze Amsel* of the Germans, *Merle* of the French, *Merla* and *Merlo* of the Italians, and κόττυφος, or κόσσυφος (cottyphus or cóssyphus), of the antient Greeks.

The Blackbird is too well known to require a description; but a word or two on the subject of its habits may not be misplaced. There are not wanting those who praise the song-thrush at the expense of the blackbird, alleging that, though the former commits depredation in our fruit gardens in summer, it makes amends by its destruction of the shell-snails (*Helices aspersa et nemoralis*), whereas the blackbird is a most notorious fruit-eater, without any such redeeming quality. That the thrush does this service is most true; but it is not less true that the blackbird is particularly fond of the shell-snails, which it devours in the same way with the thrush. In truth, small slugs and shell snails, to use the expression of a garden labourer, form 'the chief of its living,' while the thrush is equally fond of fruit in the season; but the plumage of the thrush is in its favour, and it is often pecking away at the fruit without being seen. When disturbed it glides away without noise; but the blackbird's sharp cry of alarm as it escapes generally strikes the ear, if its black coat and yellow bill have not arrested the eye. Thus much in justice to the blackbirds; for we know of instances where a war of extermination has been waged against them, while the thrushes have been held sacred.

Early in the spring the blackbird begins to build its nest. A thick-set hedge-row, an insulated close bush, a low ivied tree, are all favourite places. Moss, small sticks, root-fibres, are the materials, with an internal coat of mud-plaster, over which is a lining of fine dry grass. Four or five eggs of a bluish green, variegated with darker markings, are here deposited. Aristotle (book v. c. 13.) observes, that it lays twice, and Buffon says that the first deposit ranges from five to six eggs, but the second only from four to five. The early season at which it begins to lay is often so cold as to destroy the first brood; moreover, the leafless state of the hedge or bush at that period makes the nest an easy prey to the school boy.

The blackbird is in general shy, but there are exceptions to the remark.

In the spring of 1829 we saw a hen blackbird sitting on her nest in the camellia-house belonging to Messrs. Loddiges at Hackney. It was built in a camellia close to the walk; so close, that a passer-by might have touched the bird; but there she sat, and, undisturbed by the crowds who were attracted to the view of the noble and luxuriant collection in full bloom, there she safely hatched and brought up her young.

In the spring of 1834 a pair of blackbirds built their nest in a faggot-pile close to the door of a kitchen-garden in the parish of Sunbury, Middlesex, where the garden-labourers were passing all day long wheeling manure into the garden, &c. The nest was built among some dead thorns there piled up, so low that the passer-by could look into it, and was very much exposed: but the parents, notwithstanding the curiosity of spectators, brought up their nestlings. This was a late brood; and as many early nests had been taken in the neighbouring hedge-rows, it is not impossible that the birds, disappointed of their first brood, might have been driven to choose a spot nearer the house for security.

Albinos sometimes occur among these birds.* Several instances are recorded: the following from 'Loudon's Magazine' (No. 43, p. 596) is one of the latest. In 1829 a blackbird's nest, containing four or five young ones, was found at Rougham, near Bury St. Edmunds, Suffolk. One of the young ones differed in colour materially from the rest. Its eyes were red, its bill was yellow (which is not usual in very young blackbirds). The nest was not taken till the young were fully fledged. On attempting to capture them, two or three made their escape; the white one was safely caught. * * * The red-eyed bird afterwards became nearly or wholly white, and it still retains this colour.' In the British Museum there is a female of a dusky white or cream-colour, with Yorkshire for its locality.

H. Bruce Campbell, Esq., lately presented a male entirely white to the Zoological Society, in whose garden at the Regent's Park it is now (1835) living. It was found in June, 1832, at Belsthorpe, Nottinghamshire. There were two other young ones in the nest, the plumage of which, as well as that of the parents, was of the ordinary colour.

Bechstein, in his interesting little book on cage-birds, says, 'the white variety is very well-known; there is, besides, the streaked, the black with a white head, and the pearl gray.' The same author gives the following account of the musical properties of the blackbird in confinement. 'Its voice is so strong and clear, that in a city it may be heard from one end of a long street to the other. Its memory is so good, that it retains without mixing them several airs at once, and it will even repeat little sentences. It is a great favourite with the lovers of a plaintive, clear, and musical song, and may in these respects be preferred to the bullfinch, whose voice is softer, more flute-like, but also more melancholy. The price of these two birds, if well taught, is about the same.'

The *Ring-blackbird*, *Merula torquata*, *Ring-ouzel* or *Amzel* of Ray, *Merle au collier* of the French, *Merulo Alpestro* of the Italians, *Ringamsel*, *Ringel Amsel* and *Ringdrossel* of the Germans, *Turdus torquatus*, Linn., *Merle à plastron blanc* of Buffon, is a periodical visitant, and, contrary to the habits of its congeners, such as the *Field-fare* and *Red wing*, arrives in spring, seeking the mountainous and stony down-districts of Great Britain, where it breeds.

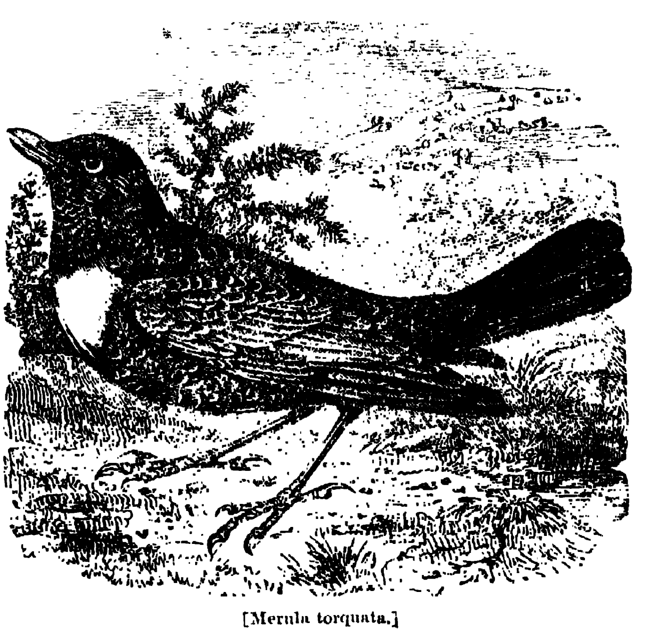
The nest and eggs very much resemble those of the blackbird in size and colour, and are generally placed in some bush or grass-tuft among the heath, and about the rocks, on a shelf or in a cleft. When its young are hatched it has no longer the shy character which, at other seasons, renders it so difficult to be approached; for it then becomes apparently bold, drawing the attention of the observer by loud cries and extravagant gestures, in order to lead him away from its nest. On the approach of autumn it retires southwards, and about the end of October leaves us for warmer climates. In Sweden, France, and Germany it is common. Bechstein says, 'though it traverses the whole of Europe, it builds only in the north.' Temminck speaks of it as rare in Holland. We have searched in vain for it in Prince Bonaparte's *Specchio Comparativo* but in Ray's Willughby (book 2, p. 195.) there is the following passage. 'In a bird that I described at Rome, the edges of the prime feathers of the wings, as also of the covert feathers of the head and wings were cinereous. The ring also was not white but ash-coloured. I suppose this was either a young bird or a hen.' Montagu speaks of it as breeding in some parts of Wales, on Dartmoor in Devonshire, and near the Land's End in Cornwall, as well as in the north of England and Scotland. The same author says, that he has received it from the mountainous parts of Ireland. We have seen it on Dartmoor in the breeding season; and in the spring of 1829 several were seen and somes hot near Bristol. In the catalogue of Dorset birds, Ring-ouzels are said to appear in Portland (where they are called *Michaelmas blackbirds*) when on their autumnal and spring flights. Slaney says, 'Mr. White gives an account of his discovery of these birds in Hampshire, in October; and we have seen them near the Isle of Thanet, probably on their return southward after rearing their young. They are said to breed on Dartmoor, and in the Peak of Derbyshire; and we have observed them among the heath on the Welch mountains in July.' Sir W. Jardine speaks of their depredations when they descend to the gardens from the mountains previous to their migration to winter quarters, and says that they are known to the country people under the title of 'mountain blackbirds.'

Buffon observes, that they appeared in small flocks of twelve or fifteen, about Montbard in Burgundy in the beginning of October, seldom staying more than two or three weeks, and that the least frost made them disappear: but at the same time he states, that Klein declares that the birds had been brought alive to him in the middle of winter, and that though they very rarely inhabit the plains of temperate Europe, M. Salerne asserts that their nests have been found in Sologne and in the forest of Orleans.

Pennant, who gives them the name *Mwyalchen y graig*, referring to Camden, among his synonyms, says 'Ring-ouzels inhabit the Highland hills, the north of England, and the mountains in Wales. They are also found to breed in Dartmoor, in Devonshire, in banks on the sides of streams. I have seen them in the same situation in Wales, very clamorous when disturbed.' He further observes, 'The place of their retreat is not known; those that breed in Wales and Scotland never quitting these countries.'

Latham, in a note to the last edition of Pennant says, 'This species is met with in the warmer and the colder regions, as well in Africa as Asia; but does not inhabit either Russia or Siberia, though it is seen in Persia about the Caspian Sea.'

Buffon also gives it a wide geographical distribution.



[Merula torquata.]

The *Ring-blackbird* or *Ring-ouzel*, is larger than the common blackbird. Length, including the tail, about ten inches and a half. Bill blackish-brown or raven gray, about an inch long, and yellowish at the base of the lower mandible; the irides chestnut-brown, and the legs dark-brown. The following is Selby's description of the plumage: 'Upper parts of the body black, the feathers being margined with blackish-gray. On the upper part of the breast is a large crescent-shaped gorget of pure white; the rest of the under parts black, margined with gray. Greater wing-coverts deeply marginated with ash-gray. Tail black.

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* Aristotle (book ix. chap. 19.) mentions the white variety ἔκλευκος, observing that in size it is equal to the black, and that its voice is nearly the same. 'το δε μέγεθος ἴσος ἐκείνῳ, καὶ ἡ φωνη παραπλησια ἐκείνῳ.' He adds, that it is found in Arcadia, ἐν Κυλληνῃ τῆς Αρκαδιας, and no where else. Varro, *de re Rusticâ* (book iii.), says that white blackbirds were shown in public at Rome, with parrots, &c.

The plumage of the female bird is more clouded with gray, and the pectoral gorget is much smaller, and clouded with reddish-brown and gray. In the young females this gorget is not visible; and in the young males it is of a reddish-white.

'Varieties are sometimes found similar to those of the blackbird.

Bechstein after remarking on the striking resemblance in the gait, in the motion of the wings and tail, and in the call of the ring-blackbird, with those habits as manifested in the common blackbird, thus speaks of its song: 'Its voice, though hoarser and deeper, is nevertheless more harmonious and agreeable. It is so weak, that a redbreast may overpower it. It continues singing at all times, except when moulting. It will live in confinement from six to ten years.'

There are other European species of the tribe, such as *Turdus saxatilis*, the *rock thrush*, and *Turdus cyaneus*, the *blue thrush*, but they are not recorded as having been observed to frequent the British islands. Cuvier observes that the foreign species which approach the European blackbirds are *Turdus Manillensis*, *Turdus Eremita*, *Turdus varius*, and *Myiothera Andromedæ*.

The *American blackbirds*, so destructive of the young maize-crop, are of a different race. [See QUISCALUS.]

BLACK BONNET (zoology), one of the names of the reed bunting. [See BUNTING.]

BLACKBURN, a market-town and township, and, under the Reform Act, a borough, in the hundred, deanery, and parish of Blackburn. It is 209 miles N.W. by N. of London, 23 miles N.N.W. of Manchester, 12 miles N.W. by N. of Bolton, 15 miles N.N.W. of Bury, 10 miles N.E. of Chorley, and 8 miles W.N.W. of Haslingden.

The parish of Blackburn is very large, extending nearly fourteen miles in length, and ten in breadth. It contains fifteen townships and eight chapelries, viz., Blackburn, Clayton-le-dale, Cuerdale, Lower Darwen, Dinkley, Eccleshill, Little Harwood, Livesley, Mellor, Osbaldeston, Pleasington, Ramsgrave, Rishton, Wilpshire, and Wilton, townships; along with Balderston, Billington, Over Darwen, Great Harwood, Salisbury, Samlesbury, Tockholes, and Walton-le-dale, Chapelries. This district is only a small part of the hundred of Blackburn, whose boundaries are marked by the hundred of Amounderness on the north-east, by the Darwent and the hundred of Leyland on the west, and by the hundred of Salford on the south. It comprises four whole parishes, Blackburn, Chipping, Ribchester, and Whalley, and parts of Bury and Metton, altogether containing eighty townships. This hundred contributes 302 men to the county militia; and the inhabitants pay nine parts in every hundred to the county rate.

All this division of the county of Lancaster, originally a wild and barren tract of country, was bestowed by William the Conqueror on Ilbert de Lacy, whose descendants and followers obtained portions of it, and derived from them their titles. Some of the names of these antient gentry are preserved in a curious book, a copy of which is in the college library at Manchester, entitled 'The Visitation of Lancashire, made anno 1567, by William Smith Rouge Dragon.' Among others are Houghton, of Houghton Tower; Osbaldeston, of Osbaldeston; Mawell, of Great Merly: and Talbot, of Salbery. The manor of Blackburn passed from the De Lacies through several successive proprietors, till it became the property of the first Lord Fauconberg by marriage, whose descendant, Thomas Viscount Fauconberg, sold it with all its rights in 1721 to William Suddell, Henry Fielding, and William Baldwin, Esqrs., for 8650*l*.

Dr. Whittaker, the historian of this district, states that there was a castle at Blackburn in former times, occupied by the Roman-British chiefs, and subsequently by the Saxons, but no vestige of it remains, and the site itself is only known by tradition. Camden, in his description of this place, speaks of it as a 'noted market-town;' while another writer (Bloom), whose account refers to nearly a century later, describes it has having 'a great weekly market for cattle, corn, and provisions, on the Monday.'

The town of Blackburn is situated near the centre of the parish, on the bank of a brook, called, in Domesday Book, 'Blacheburne,' but which has now no particular name. It is sheltered by a range of hills, which stretch from the north-east to the north-west as far as Billinge Hill. Like most other towns of the same antiquity it is irregularly built; and until lately the streets were badly paved and lighted. Under the operation of a police act, which provides for the paving, lighting, watching, and cleansing the streets, many improvements have taken place, and others are in a state of progress. The introduction of gas has been very beneficial to the town, and it is probable that the inhabitants will soon discover the advantage of procuring a better supply of water.

The police regulations in this town are very defective. Having no municipal government, the duties of preserving the public peace devolve upon irresponsible persons: and a sort of supreme authority is vested in two officers, annually elected, called high-constables, one for the higher and the other for the lower division of the hundred. The parochial concerns are managed by a select vestry.

The town of Blackburn depends entirely on trade for its prosperity. As far back as 1650, one particular article of the staple trade of the county was produced here with better success than in any other place, which gave it the name of 'Blackburn checks,' a species of cloth consisting of a linen warp and cotton woof, one or both of which being dyed in the thread, gave to the piece when woven a striped or checked appearance. This fabric was afterwards superseded by another, 'the Blackburn grays,' so called because the materials of which it was composed were not dyed, but sent to the printers unbleached, or as it is technically described, in the gray state, in order to have the patterns stamped upon them.

In the history of those improvements by which the manufacture of cotton has been brought to its present state of perfection, it would appear that several of considerable importance owe their discovery to the ingenuity and talent of natives of this town. Among the rest, the invention of the crank and comb, for taking the carding from the cylinder of the carding-engine, undoubtedly belongs to James Hargrave, a working carpenter. His patent was one of the earliest that was taken out for the construction of the spinning-jenny.

But, for a long period, the chief article manufactured here was calicoes, for which the Blackburn weavers were celebrated. This branch of trade is now transferred to the power-looms, and the remnant of hand-loom weavers are chiefly employed, at the present time, in making low-priced muslins. A considerable section of the working community are engaged in the mills, which are increasing to such an extent, that nearly 200,000 spindles are at work in the town and its immediate vicinity, yielding an average of between 60,000 and 70,000 lbs. of yarn weekly.

The annual amount of manufactured goods is estimated at more than two millions and a half sterling; but on comparing this estimate with the production of neighbouring towns, it must be observed that a much greater quantity of cloth passes through the hands of the Blackburn weaver for the same amount of remuneration, than will go into the looms of those districts where a heavier and more costly cloth is produced.

The commerce of the town has every advantage of water carriage, by means of the Leeds and Liverpool canal, which passes the outskirts of the town, opening to the inhabitants a direct communication between the eastern and western seas. The continuity of the coal-beds on the southern side of the town affords fuel at a very reasonable rate. On the northern side of the district, lime of an excellent quality is found in great abundance.

There are no public edifices in Blackburn, except those which are used for religious worship. The parish church, St. Mary's, in the archdeaconry of Chester, is of very antient foundation, having been built and endowed before the Norman Conquest. This structure was taken down and rebuilt in 1819, upon the site of the old grammar-school: and in 1831, a few years after it was finished, the new edifice was partially destroyed by an accidental fire: it is again restored, and is much admired for its architectural beauty. The living is in the gift of the archbishop of Canterbury, who is rector. The vicar of the church holds the presentations to all the chapelries of the parish, of which there are eight, but he derives no benefit from their revenues. Besides St. Mary s, there are three other churches belonging to the establishment, viz., St. John's, St. Peter's, and St. Paul's. The last was formerly in Lady Huntingdon's connexion, but the minister and congregation having conformed, it was consecrated a few years since by the bishop of the diocese. One of the other two, St. John's, was entirely built by subscription; and St. Peter's is chiefly indebted for its erection to the parliamentary grant. The dissenting places of worship are ten in number. Baptists, Independents, Roman Catholics, and Methodists, have each two chapels; and the Friends and Swedenborgians one each.

Among the public institutions for the purposes of education, the free grammar-school may be mentioned first. It was founded and endowed, in consequence of a petition to that effect from the inhabitants, by Queen Elizabeth, 'for the education, management, and instruction of children and youths in grammar,' and to have one master and one usher. The present income is reported at 120*l.* 7*s.* 4*d.*, consisting of lands and buildings, which have rather decreased in value. The endowment has however been augmented by benefactions from other sources. The general management of the school and the appointment of the masters is vested in fifty governors, who fill up vacancies as they occur. The charter describes the school as 'free to all the world,' though the number in it never exceeds thirty, and these have to pay a small fee to the master annually at Shrove tide. In 1819 the old school-house was taken down to make room for the new church, when a neat stone building was erected near St. Peter's church, in the architectural style of Queen Elizabeth's time.

There is also a charity-school for girls, founded by a benevolent individual of the name of Leyland, in which ninety girls are clothed, and instructed in reading, sewing, and knitting. The national schools are attended by 800 children of both sexes. To most of the places of worship Sunday-schools are attached, and very considerable attention is paid to the instruction of the poor. The number of children who are receiving some education in this way amounts to nearly 5000. Religious knowledge is also diffused through the Bible Society, the Society for the Promotion of Christian Knowledge, and the London and Wesleyan Missionary Societies, who have all auxiliary branches in this town. Political and general information is circulated by means of two newspapers, the 'Gazette' and the 'Alfred.' The Independents have an academy here, under the direction of proper tutors, for the education of young men of their denomination for the ministry. A horticultural society, which is in a flourishing state, has a tendency to diffuse a taste for useful pursuits. A savings bank has been open ever since 1818, in which the deposits have been very considerable.

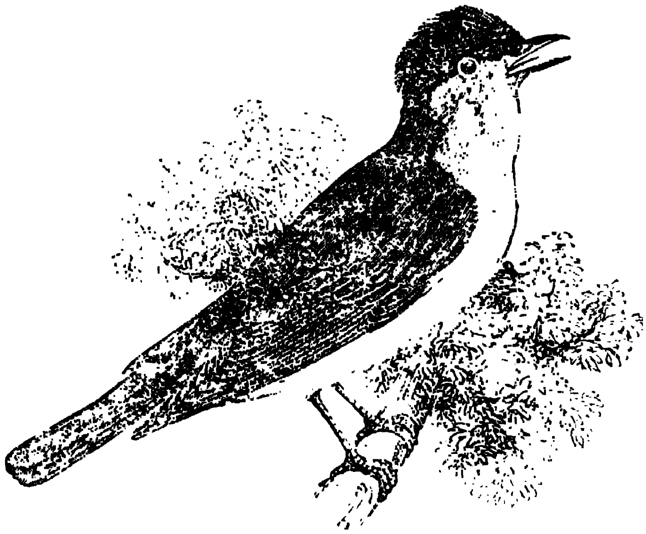
There is a general dispensary, established in 1823, partly supported by voluntary contributions, and partly by assistance from the parochial funds. The Ladies' Society for the relief of lying-in women, and the Stranger's Friend Society, are maintained by the subscriptions of the benevolent. Societies for sickness and funerals are very numerous among the working classes, and well conducted.

There are no other public buildings except a small theatre; and a cloth-hall on one side of Fleming-square, for the sale of woollen cloths, at the fairs, which are held on Easter Monday, on the 11th and 12th of May, and on the 17th of October. There are also fortnight fairs on Wednesday, continuing from the first week in February to Michaelmas, for horned cattle. Monday was the antient market-day in Blackburn, but in 1774 the markets began to be held on Wednesday and Saturday, and have continued to be so held to the present time. The market is well supplied with all kinds of vegetables and provisions suitable for such a population, but the want of proper accommodation for them is a subject of just complaint both among buyers and sellers.

The population of Blackburn has kept pace with the extension of the cotton trade. In 1770 it only amounted to 5000; in 1801 it had increased to 11,980; in 1821 to 21,940; and in the census of 1831 the population was returned at 27,091. During the same period, a very considerable increase took place in its dependencies, which advanced between 1801 and 1831 from 21,651 to 32,700. Two of the southern townships of the parish, Over and Lower Darwen, now form, under the influence of the cotton manufactures, a town of considerable size, comprising 9639 inhabitants, and containing two new churches, which have been recently erected, besides several other places of worship established by the dissenters. About 1-17th of the population of this parish are engaged in agriculture; about 1-14th are in professions or unemployed, and the remainder are occupied in trade, manufactures, or handicraft. The borough sends two members to parliament.

(Whittaker's *History of Whalley;* Baines's *History of Lancashire;* Pigot's *Directory; Communication from Lancashire.*)

BLACK-CAP (zoology), the common English name for the black-cap warbler; *der Mönch* of the Germans, *Fauvette à tête noire* of the French, *Caponera gentile* of the Italians, *Atricapilla* of Aldrovandus, *Curruca atricapilla* of Brisson, *Motacilla atricapilla* and *Motacilla moschita* of Gmelin (the latter being the female), and *Sylvia atricapilla* of Latham and of Bechstein.



[Sylvia atricapilla: male.]

'Of all the birds,' says Sweet, 'that reside in, or visit the British islands, there is none that can come up to the present for song, except the nightingale, and by some persons it is more admired than even that bird. Its arrival in this country is generally about the first week in April, and the earliest that I ever saw was on the 25th of March. They leave us again about the end of September, sometimes a straggling one may be seen at the beginning of October; the latest I ever saw in a wild state was on the 15th of that month. When it first arrives in this country its chief food is the early ripened berries of the ivy, and where those are there the black-caps are first to be heard singing their melodious and varied song. By the time the ivy-berries are over, the little green larvæ of the small moths will be getting plentiful, rolled up in the young shoots and leaves: this then is their chief food until the strawberries and cherries become ripe; after that there is no want of fruit or berries till their return, and there is no sort of fruit or berry that is eatable or wholesome that they will refuse. After they have cleared the elder-berries in autumn, they immediately leave us.'

Nor is Sweet singular in his eulogy. All agree in praising its melody. In Norfolk, and in other places in Great Britain, it is called the mock nightingale; and indeed, like the nightingale, it continues its song far into the night. Bechstein, who has paid so much attention to the song of birds, says that it rivals the nightingale, and that many persons even give it the preference.' 'If,' adds that author, 'it has less volume, strength, and expression, it is more pure, easy, and flute-like in its tones, and its song is perhaps more varied, smooth, and delicate.'

This fruit-eating warbler is one of the *ficedulæ* so much prized under the name of *beccafico*, though, as Bechstein well observes, every taste but that of the palate must be destroyed if this charming bird is caught for the table. Its fondness for ivy-berries seems to have been noticed in Italy, where it is permanent, and thence probably is derived one of its Italian names, *caponera d'edera.* The difference of plumage in the males and females, and in the young birds, which resemble the females, may possibly throw some light on the opinion which Willughby thus mentions:—'The antients report,' writes Willughby, 'that the black-caps

(*Atricapillæ*), in the beginning of autumn, are changed into *ficedulæ*, or *beccafigos*, by the mutation of their voice and colour; from whom, till I be assured by experience, I must crave leave to dissent.'

There can be little doubt that Willughby had in his mind that passage in the 49th chapter of the 9th book of Aristotle, where the latter, speaking of the changes of birds, states that the beccaficos (*συκαλίδες*) and the black-caps (*μελαγκόρυφοι*) are changed into each other. Indeed, Willughby thus heads his chapter on the black-cap:—' The Black-cap: Atricapilla seu Ficedula, Aldrov.; called by the Greeks **Συκαλὶς** et Μελαγκόρυφος; by the Italians, Capo Negro.' The passage in Aristotle may be thus freely translated:—

' And, in like manner, beccaficos and black-caps, for these too are changed into each other. The bird is a beccafico at the commencement of autumn, and a black-cap at the decline of that season, and the only difference is in their plumage and their voice. That they are the same birds may be seen by observing them before the change is complete, and when they are neither one nor the other.'

Pliny too appears to have had this passage in his view, though he does not acknowledge it, when he wrote (lib. x. cap. 29), 'Alia ratio ficedulis. Nam formam simul coloremque mutant. Hoc nomen non nisi autumno habent, postea melancoryphi vocantur.'

Belon (ed. 1555, folio) makes the bulfinch the *συκαλὶς* and *μελαγκόρυφος* of the Greeks, and beccafighi of the Italians, naming it also atricapilla; but in a subsequent edition, ' enrichy de quatrains' (small 4to. 1557), the Greek, Latin, and Italian names identifying it as a ficedula, as well as the name atricapilla, are omitted; and the bird appears with the provincial synonyms of the bulfinch. In other instances, in that of the very next bird for example, the Greek and Latin names given in the folio edition are retained.

Upon the whole, there is reason for coming to the conclusion that our black-cap is the bird alluded to by Aristotle. Ray seems to have been of this opinion, for he thus records it in his Synopsis:—'Atricapilla sive ficedula, Aldrov.; *συκαλὶς* et *μελαγκόρυφος*, Græcis; the black-cap.'

It occurs frequently in the greater portion of Europe, through the northern and eastern parts of which it is widely diffused. Temminck says that it is rare beyond the Apennines and Pyrenees. Bonaparte notes it as permanent and common near Rome.

The male black-cap is nearly six inches in length, and about four drams and a half in weight. Upper part of the head black; back of the neck ashy brown; upper parts of the body grey, with a greenish tinge; quills and tail dusky, edged with dull green; breast and belly light ash-colour; legs and feet bluish-grey, or lead-colour; bill brown; irides dark hazel.

The female is of larger size; the crown of the head is of an umber-brown or rust-colour; and the plumage generally is darker, and more inclining to greenish than it is in the male.

The plumage of the young when they leave the nest resembles that of the female.

Gardens, orchards, and thick hedges are the favourite haunts of the black-cap; and there, among brambles and nettles, or in some low bush, its nest is built. Dry stalks of goose-grass and a little wool, lined with fibrous roots, and frequently with a few long hairs, with now and then a little moss on the outside, form the structure. Four or five, sometimes six, eggs of a reddish-brown, weighing about thirty-five grains, mottled with a darker colour, and sometimes dotted with a few ashy specks, are then deposited. Pennant speaks of a nest which he discovered in a spruce fir. Temminck mentions the hawthorn-bush as the most frequent place.

The black-cap in a state of nature is with difficulty seen when singing, at which time it seems to take pains to secrete itself. White, however, who saw it in this act, says that, while warbling, the throat is wonderfully distended.

In captivity it seems to be a great favourite, not only from its song but from its attractive qualities. Even in a state of nature it is a mocking-bird, and, when caged, it soon learns the notes of the nightingale and canary. The female is also, but in a limited degree, a songster.

Bechstein speaks of the striking affection which it shows for its mistress:—' It utters a particular sound, a more tender note to welcome her; at her approach he darts against the wires of his cage, and by a continued fluttering, accompanied with little cries, he seems to express his eagerness and gratitude. A young male, which I had put in the hot-house for the winter, was accustomed to receive from my hand every time I entered a meal-worm; this took place so regularly, that immediately on my arrival he placed himself near the little jar where I kept the meal-worms. If I pretended not to notice this signal, he would take flight, and, passing close under my nose, immediately resume his post; and this he repeated, sometimes even striking me with his wing, till I satisfied his wishes and impatience.'

The bird under consideration must not be confounded with another soft-billed black-cap, *Sylvia melanocephala* of Latham, *Motacilla melanocephala* of Gmelin, which, according to Temminck, only inhabits the most southern parts of Europe, such as the south of Spain, Sardinia, and the Neapolitan States. He says that some pairs of these were killed by M. Natterer at Algesiras and near Gibraltar. This again, says Temminck, may be easily confounded with a third, *Sylvia Sarda* of Marmora, which is very common in certain districts of Sardinia, but not found in others. Temminck adds that it probably also lives in the kingdom of Naples, and in Sicily. The males of both these last are about five inches long.

BLACK-CAPPED TOM-TIT. [See Titmouse.]

BLACK-COCK (zoology), one of the English names for the heath-cock, the male of the black game or black grouse; *Der Birk-hahn* of the Germans; *Coq de bruyère à queue fourchue*, *Coq de bois*, and *Faisan bruyant* (Belon), of the French; *Gallo di monte*, *Gallo cedrone*, *Gallo selvatico*, *Gallo alpestre*, *Fasan negro*, and *Fasiano alpestre* of the Italians: *Orrfugl* of the Norwegians; *Tetrao seu urogallus minor* of Willughby and Ray; *Tetrao tetrix* of Linnæus; and *Lyrurus tetrix* of Swainson. The female is called a *grey hen*, and the young are named *poults*,* a term which is applied to the black game generally on the borders of Hampshire and Dorsetshire.

Lyrurus tetrix.]

This noble bird, whose plumage when in full beauty has defied all pencils save that of Edwin Landseer, the only painter who has given a true idea of it, is now the largest of its race in the British islands, of whose fauna it is one of the principal ornaments. It is, says Temminck, more widely diffused over the central parts of Europe than the capercailzie (*Tetrao urogallus*); or the rakkelhan, Temminck (*Tetrao medius*, Meyer. In Germany, France, and Holland, it is tolerably plentiful: in the northern countries, such as Denmark, Sweden, Norway, and Russia, it abounds.

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* This is an old name for the black-game. Thus Turbervile (1611) writes, 'If your goshawke be once a good partridger, beware that you let her not flee the pout or the feasant.'

Of the southern counties of England, Hampshire, Dorsetshire, Somersetshire, and Devonshire possess it, and now and then it is seen in the heathy parts of Sussex and Surrey. In the New Forest, and the wild heaths on the borders of Hampshire and Dorsetshire, in the neighbourhood of Wimborne, it is perhaps more common than it is anywhere else in the south. The Quantocks, and some other uncultivated tracts in Somersetshire, and Dartmoor and Sedgemoor in Devonshire, are its head-quarters in those counties; but it is comparatively rare.

Staffordshire has it sparingly, and Northumberland plentifully.

In the Highlands of Scotland the black-cock is abundant, and it is found in some of the Hebrides. In North Wales it occurs sparingly, where it is strictly preserved.

Pennant says that some had been shot in Ireland, in the county of Sligo, where the breed was formerly introduced out of Scotland, but expresses his belief that, at the time he wrote, they were all exterminated. Some may be seen in aviaries, in the Zoological Gardens in the Regent's Park for instance; but they languish in confinement, and all attempts to domesticate them have failed.

Selby's account of the haunts and habits of the black-cock in a state of nature is so good, that we shall give it in his own words:—

'The bases of the hills in heathy and mountainous districts, which are covered with a natural growth of birch, alder, and willow, and intersected by morasses clothed with long and coarse herbage, as well as the deep and wooded glens so frequently occurring in extensive wastes, are the situations best suited to the habits of these birds, and most favourable to their increase. During the months of autumn and winter the males associate, and live in flocks, but separate in March or April; and, being polygamous, each individual chooses some particular station, from whence he drives all intruders, and for the possession of which, when they are numerous, desperate contests often take place. At this station he continues every morning during the pairing season (beginning at day-break) to repeat his call of invitation to the other sex, displaying a variety of attitudes, not unlike those of a turkey-cock, accompanied by a crowing note, and one similar to the noise made by the whetting of a scythe. At this season his plumage exhibits the richest glosses, and the red skin of his eyebrows assumes a superior intensity of colour. With the cause that urged their temporary separation their animosity ceases, and the male birds again associate, and live harmoniously together. The female deposits her eggs in May; they are from six to ten * in number, of a yellowish-grey colour, blotched with reddish-brown. The nest is of most artless construction, being composed of a few dried stems of grass placed on the ground, under the shelter of a tall tuft or low bush, and generally in marshy spots where long and coarse grasses abound. The young of both sexes at first resemble each other, and their plumage is that of the hen, with whom they continue till the autumnal moult takes place; at this time the males acquire the garb of the adult bird, and, quitting their female parent, join the societies of their own sex. The food of the black grouse, during the summer, chiefly consists of the seeds of some species of *Juncus*, the tender shoots of heath, and insects. In autumn, the crowberry, or crawcrook (*Empetrum nigrum*), the cranberry (*Vaccinium oxycoccos*), the whortleberry (*Vaccinium vitis Idæa*), and the trailing arbutus (*Arbutus uva ursi*), afford it a plentiful subsistence. In winter, and during severe and snowy weather, it eats the tops and buds of the birch and alder, as well as the embryo shoots of the fir tribe, which it is well enabled to obtain, as it is capable of perching upon trees without difficulty. At this season of the year, in situations where arable land is interspersed with the wild tracts it inhabits, descending into the stubble grounds, it feeds on grain.'

Colonel Hawker (*Instructions to Young Sportsmen*) mentions a very good day's black-game shooting on the manors of Hampreston and Uddens near Wimborne, on the 25th of August, 1825, when, according to his account, Mr. John Ponton of Uddens House and himself saw eleven brace of poults, and killed eight brace, but not one old cock did they see all day. Colonel Hawker's excellent hints for getting at these and other birds, founded, as all such hints of his are, upon a practical knowledge of the habits of the objects of his pursuit, show the advantage to be derived by the sportsman from an acquaintance with natural history especially that part of it which is conversant with the habits of animals.

[Lyrurus tetrix, fem.*]

Linnæus says that the young are brought up upon gnats. Swainson, in his system, places the bird as the first subgenus (*Lyrurus*) of his aberrant group of *Tetraonidæ*.

That the black-cock was known to the antients there is little doubt. Aristotle, in the first chapter of his sixth book, where he is speaking of the nidification of birds, says, that 'those which are not strong of flight, such as partridges and quails, do not lay in nests (properly so called) but on the ground, merely collecting together materials (ὕλην): so also do the larks (κόρυδος) and the tetrix.' At the end of the chapter he says, 'But the tetrix, which the Athenians call ourax, neither makes its nest upon the bare ground nor yet upon trees, but upon low plants (ἐπὶ τοῖς χαμαιζήλοις φυτοῖς):' answering to Temminck's description—'Niche dans les bruyères ou dans les buissons;' to Selby's—'Under the shelter of a tall tuft or low bush, generally where long and coarse grasses abound;' and to Graves's—'On any dry grass or heath, without any appearance of a nest, but most generally in the midst of a high tuft of heath.' This tetrix, then, which the Athenians called ourax, was not improbably our black-cock.

Pliny's description (cap. xxii. lib. x.)—'Decet tetraonas suus nitor absolutaque nigritia, in superciliis cocci rubor'—looks very like our bird, though the passage occurs in his chapter on geese, and so it struck Belon. The tetraones mentioned in company with the peacocks, guinea-fowls, and pheasants, in chap. xii. of Suetonius (in *Calig.*), were probably the same.

The flesh of the black grouse is much esteemed. The different colour of the flesh of the pectoral muscles must have struck every one. The internal layer, which is remarkably white, is esteemed the most delicate portion. Belon goes so far as to say that the three pectoral muscles have three different flavours: the first that of beef, the next that of partridge, and the third that of pheasant.

Male.—Weight of a fine specimen about four pounds; bill dusky black; irides hazel; head, neck, breast, back, and rump, glossy black, shot with steel-blue and purple; eye-brows naked, granulated, and of a bright vermilion red; belly, wing-coverts, and tail, pitch black; secondaries tipped with pure white, and forming with the neighbouring coverts a band across each wing; under tail-coverts pure white; legs furnished with hair-like feathers of a dark-brown,

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According to Temminck, the eggs sometimes amount to ten, and according to Naumann, to sixteen.

* The hen is represented too large in proportion to the cock.

speckled with gray; toes pectinated; tail black—the exterior feathers bend outwards, and are much longer than those in the middle: this arrangement gives the singular curvature and forked shape to the tail which distinguishes the bird.

Female.—Weight about two pounds; general colour ferruginous, barred and mottled with black above, paler below, with dusky and brown bars; under tail-coverts white, streaked with black; tail orange-brown, speckled with black, showing a slight disposition to be forked, tipped with grayish white.

No person is permitted to kill, destroy, carry, sell, buy, or have in his possession, any heath-fowl, commonly called black-game, between the 10th of December and 20th of August. The limitation in the New Forest, Somerset, and Devon, is greater, being from the 10th of December to the 1st of September.

HYBRIDS.

There have lately occurred some well authenticated instances of hybrids bred between the common pheasant and the gray hen; but before we enter into the history of these, we must call the attention of our readers to the celebrated bird sent by Lord Stawell to White for his inspection, and thus described by the latter in his 'Selborne.'

'The shape, air, and habit of the bird, and the scarlet ring round the eyes, agreed well with the appearance of a cock pheasant; but then the head and neck, and breast and belly, were of a glossy black; and though it weighed three pounds three ounces and a half, the weight of a large full grown cock pheasant, yet there were no signs of any spurs on the legs, as is usual with all grown cock pheasants, who have long ones. The legs and feet were naked of feathers, and therefore it could be nothing of the grous kind. In the tail were no long bending feathers, such as cock pheasants usually have, and are characteristic of the sex. The tail was much shorter than the tail of a hen pheasant, and blunt and square at the end. The back, wing-feathers, and tail were all of a pale russet, curiously streaked, somewhat like the upper parts of a hen partridge. I returned it with my verdict that it was probably a spurious or hybrid hen bird, bred between a cock pheasant and some domestic fowl. When I came to talk with the keeper who brought it, he told me that some pea-hens had been known last summer to haunt the coppices and coverts where this mule was found.'

After stating that Mr. Elmer of Farnham, the famous game painter, was employed to take an exact copy of this curious bird, the note in White proceeds thus: 'N. B. It ought to be mentioned that some *good* judges have imagined this bird to have been a stray grous or black cock; it is, however, to be observed that Mr. White remarks that its legs and feet were naked, whereas those of the grous are feathered to the toes.

To this Markwick appends the following suggestion:—'May not this hybrid pheasant (as Mr. White calls it) be a bird of this kind: that is, an old hen pheasant, which had just begun to assume the plumage of the cock?'

We had always understood that this bird was in the possession of Lord Stawell, and some recent inquiries tended to corroborate our opinion; but the Hon. and Rev. W. Herbert says, in a note to the description above given, 'I saw this curious bird stuffed in the collection of the Earl of Egremont at Petworth, and I have not the slightest hesitation in pronouncing that it was a mule, between the black cock and the common pheasant. I did not entertain the slightest doubt on the subject: Mr. Markwick's suggestion that the bird may be an old pea-hen is very weak. He might as well have said an ostrich. Neither in size, shape, nor colour had the bird the least affinity to a pea-fowl. I can also most positively assert that this bird was not, as suggested in a note (p. 343), a hen pheasant, with the feathers of a cock. Such birds are well known to me, and it noways resembled them. To Mr. White's description of the bird above, where he says that the back, wing-feathers, and tail were somewhat like the upper parts of a hen partridge, I scratched out at the time the words "*somewhat like*," and wrote in the margin "*much browner than*," and with that correction I believe Mr. White's description to be quite correct.' (White's *Selborne*, edit. 1833.)

Notwithstanding Mr. Herbert's positive opinion that this bird was a mule between the black cock and the common pheasant, Mr. Yarrell, whose clear views of such subjects are well known, and who stated at the Zoological Society's meeting on the 31st of May, 1833, that the hybrid grouse of White's *Natural History of Selborne* is believed to be a young black cock having nearly completed his first moult still adheres to his statement, and we agree with him.

We now come to undoubted cases of hybrids arising from a mixture with the gray hen.

At a meeting of the Zoological Society on the 24th of June, 1834, Mr. Sabine called the attention of the meeting to a specimen of a hybrid bird between the common pheasant, *Phasianus Colchicus*, Linn., and the gray hen, *Tetrao tetrix*, Linn., which was exhibited. Its legs were partially feathered; it bore on the shoulder a white spot; and its middle tail-feathers were lengthened. Mr. Sabine stated his intention of entering at some length into the history of hybrid and cross animals in connexion with his description of this bird, which was bred in Cornwall. This bird was a male

On the 12th of May, 1835, at a meeting of the same society was read 'Some account of a hybrid bird between the cock pheasant, *Phasianus Colchicus*, Linn., and gray hen, *Tetrao tetrix*, Linn., by Thomas C. Eyton, Esq. The paper, which was illustrated by the exhibition of the preserved skin of the bird, and also of a drawing made from it, proceeded as follows:—

'For some years past a single gray hen has been observed in the neighbourhood of the Merrington covers, belonging to Robert A. Slaney, Esq., but she was never observed to be accompanied by a black cock, or any other of her species. In November last a bird was shot on the manor adjoining Merrington, belonging to J. A. Lloyd, Esq., resembling the black game in some particulars, and the pheasant in others. In December another bird was shot in the Merrington covers, resembling the former, but smaller; it is now in my collection, beautifully preserved by Mr. Shaw of Shrewsbury.

'The hybrid bird in my possession, which is a female, may be thus shortly described:

'Tarsi half-feathered, without spurs, of the same colour as in the pheasant; bill resembling that of the pheasant both in colour and shape; irides hazel; crown and throat mottled black and brown; neck glossy black, with a tinge of brown; breast of nearly the same colour as that of the cock pheasant, but more mottled with black; tail of the same colour as in the gray hen; centre tail-feather longest; under tail-coverts light brown.

'The plumage of this bird is very curious, as some parts of it resemble either sex of both black game and pheasant.

'I had an opportunity of examining the body after it was taken from the skin, and of comparing it with the black game and the pheasant.

'The following are some remarks which I made on its anatomy:—

'Left oviduct very imperfect; the ovaries very small; the eggs scarcely perceptible, and very few in number.

'The sternum approaches nearer to that of the black grouse than of the pheasant; but the bone is not so massive, the anterior edge of the keel is more scolloped, and the bone between the posterior scollops is not so broad as in the black game.

'The *os furcatorium* is that of the pheasant, being more arched than in the black game, and having the flat process at the extremity next the sternum broader.

'The pelvis is exactly intermediate between the two, having more solidity, and being both broader and longer than in the pheasant; but resembling that of the pheasant in having the two processes on each side of the caudal vertebræ, which serve for the attachments of the levator muscles of the tail.

'The subjoined table shows some comparative measurements between the hybrid bird in question, the cock pheasant, and the gray hen

	Grey hen.		Hybrid bird, female.		Male pheasant.	
	Ft.	In.	Ft.	In.	Ft.	In.
Length of the tarsus . .	0	$2\frac{2}{10}$	0	$2\frac{1}{4}$	0	$3\frac{1}{10}$
Length of the middle toe .	0	$2\frac{1}{10}$	0	$2\frac{1}{2}$	0	$2\frac{2}{10}$
Expansion of the wings .	2	0	2	2	2	$4\frac{1}{2}$
Length of the middle tail-feathers	0	4	0	$7\frac{1}{2}$	1	7
Length of the intestinal canal from vent to gizzard	4	2	3	$5\frac{1}{2}$	4	0
Length from the vent to the cæca	0	6	0	$5\frac{1}{2}$	0	$4\frac{1}{2}$
Length of the cæca . .	2	0	2	0	0	$8\frac{1}{2}$

BLACK FOREST. [See Schwarzwald.]

BLACK or DOMINICAN FRIARS, an order of mendicants whose founder was St. Dominic, a Spaniard, born at Calagueraga, a small town in the diocese of Osma in Old Castile, about A.D. 1170 (see the *Hist. des Ordres Monastiques*, tom. iii. p. 198), and not as Tanner (*Notit. Monast.* edit. Nasmith, pref. p. xiii.) says, in 1070. His real name was Dominic de Guzman. He died in 1221, and was canonized by Pope Gregory IX. in 1235.

These friars were called Dominicans from their founder; Preaching Friars, from their office to preach, and convert Jews and heretics (see *Lit. Pat.* 8 Edw. I. m. 23; and 14 Edw. II. p. 1, m. 16); Black Friars from their garments; and, in France, Jacobins, from having their first house in that country in the rue St. Jacques at Paris.

Their rule, which was chiefly that of St. Augustine, was approved by Pope Innocent III. in the Lateran Council, A.D. 1215, by word of mouth; and by a bull from Pope Honorius III., A.D. 1216. They were known, however, earlier than this; for Rymer in his *Fœdera*, tom. i. p. 137, has printed a license or permission addressed from Pope Innocent III. to King John of England, A.D. 1204, for such Dominicans and Franciscans, who might accompany the king in going beyond sea, to ride, the rules of their order obliging them to travel on foot.

Thirteen of these Dominican friars, according to Reyner (*Apostolat. Benedictin. in Angl.* tom. i. p. 161), including a superior, came into England A.D. 1221, for the purpose of establishing their Order in England, when Stephen Langton, then archbishop of Canterbury, giving his approval, they were allowed to settle, and fixed their first house at Oxford in that year. (Reyner, ut supr.; see also Wood's *Hist. of Oxford*, p. 62; N. Triveti, *Chron.* p. 176.) The Black Friars at London was their second house: originally placed near where Lincoln's Inn now stands, but removed about 1279 to some place near Castle Baynard, where the parochial district still bears the name of the Order.

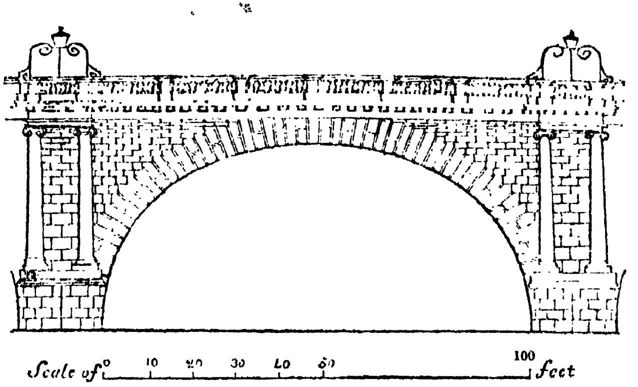
At the time of the dissolution of the monasteries under Henry VIII. there were fifty-eight houses of Dominicans in England and Wales. Tanner, who did not find them all out, reckoned the English houses only at forty-three.

Tanner says—'There were nuns also of this order, but I think none in England; for, though Thomas Lord Wake intended to have brought some of them hither, and had the king's license for it, yet he seems not to have done it.' (*Notit. Monast.* ut supr.) The nuns of Dartford in Kent however are believed to have been for some time of this Order. King Edward III., in his letter to the bishop of Rochester, concerning his intended foundation of that house, calls it 'une Maison des soeres de l'Ordre de Precheurs.' (See Thorpe's *Registrum Roffense*, p. 312.)

Stevens has given an elaborate account of the origin of the Dominican Order, from the *Histoire des Ordres Monastiques*, already quoted, followed by a catalogue of the most celebrated men of English birth among the Black Friars who were writers. Amongst these Robert Kilwarby, afterwards archbishop of Canterbury and a cardinal of the Roman Church, who died in 1280; Nicholas Trivet, the historian, who died in 1328; and Robert Holcot, who died in 1349, are the most distinguished.

Stevens, in his *Appendix*, vol. ii. pp. 369, 370, has also preserved the following instruments illustrative of the general history of this order in England. The first two, from King Richard II., forbid the granting of any degrees in the universities to apostate brothers of the Dominicans. (*Pat.* 14 Ric. II. p. i. m. 16, A.D. 1390, Rym. *Fœd.* old edit. tom. vii. p. 690; and *Pat.* 21 Ric. II. claus. 21 Ric. II. p. 1, m. 26, Rym. *Fœd.* tom. viii. p. 8, A.D. 1397.) The third, from the same king (*Pat.* 23 Ric. II. claus. 23 Ric. II. m. 2, d. Rym. *Fœd.* tom. viii. p. 87, A.D. 1399), is in vindication of the Dominicans and other mendicants from malicious charges. The fourth is the license granted by Pope Innocent III., allowing them to ride, already mentioned. These deeds are reprinted in the last edition of Dugdale's *Monasticon*, vol. vi. pt. iii. pp. 1482-1484.' In the same volume, pp. 1485-1500, there are accounts and notices of fifty-eight houses of Black Friars formerly existing in the different counties of England and Wales.

BLACKFRIARS BRIDGE, one of the six magnificent bridges built over the Thames within the cities of London and Westminster, and the third in point of date. The bridge takes its name from the circumstance of a monastery of Black Friars having existed near its site. The north end of the bridge, which is situated in the city of London, occupies what was formerly the mouth of the Fleet ditch; the south end is situated in the borough of Southwark. This structure, which was built by the late Robert Mylne, consists of nine elliptical arches, of which the central arch is 100 and the side arches 70 feet span. The whole length is 1035 feet. The breadth of the carriage-way is 28 feet, and the footways 7 feet each. On the cutwaters of the piers are two Ionic columns supporting an entablature, on which is a platform forming a projecting recess; and above on a blocking course is a massive balustrade, which with the entablature of the columns is carried along the whole extent of the bridge. The greatest height of the bridge from the level of the caissons on which the piers are laid to the top of the balustrades is about 70 feet. The road-way is very steep, the inclination being in some places 1 in 16. The first stone is stated by Pennant to have been laid on the 30th of October, 1760, but according to the 'Narrative' hereafter quoted, on the 31st. Though the bridge is said to have been completed about the latter end of the year 1768, it was not entirely finished until 1770; and the approaches and embankments, which were very extensive and attended with great difficulties, were carried on for several succeeding years.



From a Narrative referred to in the report of the committee to the common-council of London, dated May 14, 1784, we learn several facts connected with the building of Blackfriars-bridge, which, as they are not generally known, it may be well to give here in a condensed form.

The city undertook to open a new bridge while the improvements of the old London-bridge were being carried on. A report was made by a committee of the common-council in 1754, and a design by Mr. Dance, the surveyor to the city works, with an estimate amounting to 185,950*l.*, exclusive of the approaches and the expense of piling.

In 1756 successful application was made to parliament, and a grant of a reversionary toll, with power to borrow 160,000*l.* upon the credit thereof, were obtained; and twelve aldermen and twenty-four common-councillors were subsequently appointed to carry the act into effect.

On account of the scanty means of the city, and probably the difficulty of raising money, it being war time, it was a matter of consideration whether the bridge should be of wood or stone, or both. A public proposition was eventually made for a loan of 144,000*l.*, and the subscribers were to have the city seal for their security. This proposition was so eagerly embraced, that in seventeen days the whole of the subscriptions were filled up; and 19,000*l.* was eventually added to the fund, from the fines levied on those who refused to serve the office of sheriff. To diminish the expenses, the committee acted without fee or reward, and by their prudent economy, 12,806*l.* 1*s.* 6*d.* was added to the general fund. The bridge was advertised as open for competition; and the drawings and models were sent in on the 4th Oct. 1759.

An objection being made to the elliptical form of the arches in the design presented by Mr. Mylne, as deficient in strength and stability, the objection was directed to be laid before eight competent gentlemen. In 1760 these gentlemen determined in favour of Mr. Mylne. The form of his arch was then considered not only best adapted to the navigation at all times of tide, without raising the carriage-way to an inconvenient height, but also much stronger than the semicircular arch constructed in the common way, whilst at the same time its great width rendered fewer piers necessary. Mr. Mylne was accordingly chosen surveyor on the 27th of February, 1760. The foundations of the piers were piled, to guard against a failure like that which occurred in one of the arches of Westminster bridge; but the caissons on which the piers are laid are considerably distorted. The bridge was placed as near as possible at right angles to the stream of ebb and flood.

The bridge itself cost 152,840*l.*; but before it was opened a temporary way for passengers was carried across the arches, by which 1757*l.* was added. The total expense was however so much increased by the embankments and approaches, that it was estimated in 1766 at 232,185*l.* 12*s.* 6*d.*, and amounted in the end to nearly 300,000*l.* The shares were about the same time bought up by government, and the bridge made free to the public by the removal of the toll which had been placed on it.

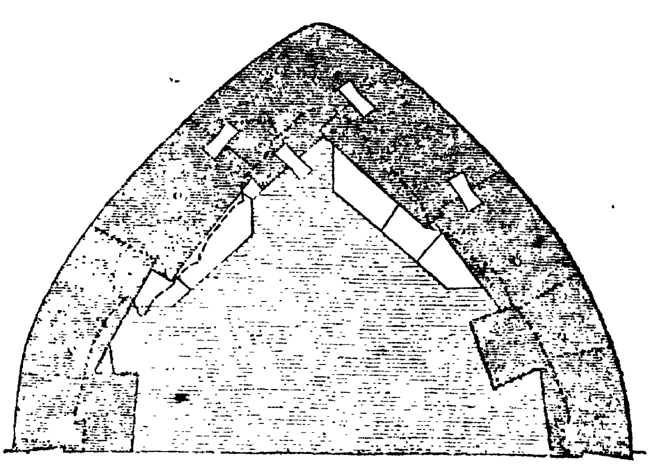
The soft nature of Portland stone, of which the bridge is built, and its unfitness for water-works, will satisfactorily account for the decay of the piers and cutwaters, as well as of many of the arch-stones. The attention of the city authorities having been called to the dilapidated state of the bridge, Messrs. Walker and Burges, engineers, were employed to survey it, and from their report, read at a common-council held on the 25th of April, 1833, it appeared, that the works above low water would cost 60,000*l.* repairing, and 30,000*l.* would be required for piling, coffer-dams, and securing the foundations. The foundations were examined by means of Deane's patent helmet, and a full detail of the state of the works is given in the report.

An act of parliament was immediately applied for and obtained, and the works of repair begun, under Messrs. Walker and Burges's direction, early in the following season. In these the chief object has been to protect the foundations from the effects of the increased depth and scour of the river in consequence of the removal of old London bridge, by a casing of piles round the piers, covered with masonry; and generally to restore the decayed parts of the superstructure. The architectural character of the bridge has not been materially interfered with, the only alterations contemplated being that the cutwaters are to be widened and made higher, and to be built of granite; the columns are to be shortened, which will improve them, as they are now higher than the rules of architecture admit; and the present balustrade removed, and a plain parapet substituted.

Great ingenuity has been displayed in the method of restoring the defective arch-stones. The aperture to be filled up being wider at the back part than the front, causes difficulty in efficiently repairing arches so dilapidated; for although a few stones may be repaired in an indifferent manner, and may not affect the stability of the structure, yet, when a fourth of the whole soffit has to be replaced, as has been done in the Surrey arch, it is of the greatest importance that each stone which is inserted should do the duty of the one which was originally there. This object is attained by the plan adopted.

The broken or decayed parts of the arch-stones are generally cut out to the depth of fifteen inches. After the old work has been properly prepared, the space is filled up with two stones or thicknesses instead of one. The one first laid, which we will call the lower stone, is thicker at the back than at the front by rather more than the difference of the heights of the front and back part of the whole course of which it is a part. Suppose the course to be fitted in is two feet five inches high in front, and two feet six inches at the back, the lower stone is made one foot five inches high on the face, and one foot six and a half inches at the back. The other stone will then require to be thinner behind than before, and in the case supposed will be twelve inches in front and eleven and a half behind; or, in other words, it is a stone wedge fifteen inches deep, with a draught of half an inch, which, when driven back, causes the two thicknesses to take a bearing with the old work.

In the centre of the bed of this upper stone a hole is bored, into which, previous to its being driven, is put a circular stone plug, tapering from the middle towards each end: to this plug a cord is attached, which passes through a hole drilled from the chamfer outside to the upper part of the large hole, where it is fastened to the top of the stone plug. By this means the plug is kept steady during the operation of driving. When the upper stone has been driven into its place, the cord is loosened, and the plug falls half its length into a hole, which has been made to receive it, in the lower stone.



[Cut showing the plan of the cutwater restored. The dotted line shows the decay of the stone to that margin.]

When it is necessary to replace a stone high up in the arch (for instance, a part of the key-course), as the plug which connects the two thicknesses lies horizontally and cannot fall into its place, the workmen are obliged to bore a small hole from the chamfer to the back of the large hole in the thickest stone, through which they pass another cord which is fastened to the other end of the plug. A small groove is made in the beds of stone to protect the string while the wedge stone is driven home, which being done, it is only necessary to loose one cord and pull the other, and the plug is immediately brought into the hole in the other stone. By this means the two stones are so connected that it is impossible for one to come out without the other. The annexed sections of the stones will make this more intelligible.

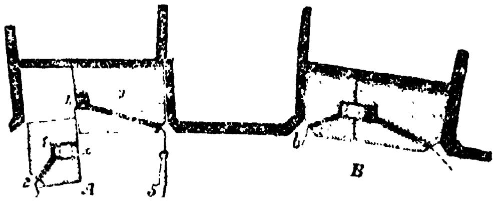


Figure A shows a stone just ready to be driven to its place; 1 is the wedge in which the plug *a* is kept steady by a cord which comes through a hole to the chamfer, and is made fast round a piece of wood at 2; 3 is the other half already set, with its hole 4 to receive the plug when 1 is driven home; 5 is a weight (most commonly a mason's chisel) which keeps the cord tight that is attached to the end of the plug marked *a*, by which it is drawn into the hole 4. Figure B shows a stone finished, with the plug drawn into the hole of the stone which was first set. Soft mortar is then forced through the hole *b* so as to fill up the whole of the space round about the plug, which being thus imbedded, it is impossible for it to move.

To ascertain if the plug is in its proper place, a piece of iron with a joint is passed into the hole bored from the upper chamfer, which, if it enter into the hole, proves that the plug is in its proper place. If the plug cannot be got in, which rarely happens, the upper piece of stone has to be cut out again.

In each of the piers there will be nearly 10,000 cubic feet of granite. Four dams in all are to be formed. The quantity of timber in that round the fifth pier is about 30,000 cubic feet, the sheet-piling consisting of half timbers. The approaches to the bridge on both sides are intended to be improved by being made less steep. The cornice line, which is now very irregular, is to be altered so as to be flatter than at present. It was proposed to widen the bridge, but this project has been abandoned, from a wish to preserve the columns, which, however beautiful they may be in themselves, are not of that value which the proposed alteration would have been to the public. (*Narrative referred to in the Report of the Committe* *Council*, 14th May, 1784, MS.; *Report o* *cil on Blackfriars Bridge Embankment and Surrey Roads*, 1781, MS.; Pennant's *London*; *Report to the Common*

Council from the Committee appointed in relation to Blackfriars Bridge, presented 25th April, 1833; *Plans, Elevations, and Sections of the Machines and Centering used in erecting Blackfriars Bridge, drawn and engraved by R. Baldwin, Clerk of the Work,* 7 large folio plates, London, 1766.) Two fine folio prints, showing the centering of the arches, executed under the superintendence of Mr. Mylne, were published in 1764 and 1766, one engraved by Rooker, the other by Piranesi. There is also an elevation of the bridge, published by Taylor, London. The original drawings for the bridge, and papers connected with its history, are in the possession of a private gentleman.

BLACKHEATH, the name of a hundred in the lath of Sutton-at-Hone, county of Kent. This hundred is called in Domesday Book the *hundred of Grenviz*, or Greenwich, but it did not long retain this denomination, for we find it called by its present name in the 7th of Edward I., the king being then lord of it. The hundred contains the following parishes:—so much of Deptford as lies in Kent; Greenwich; Charlton; Woolwich; Eltham; Lee; Lewisham; and part of Chislehurst. The fine elevated heath which gives name to the hundred adjoins to the south of Greenwich, in which parish it chiefly lies, although it also extends into those of Lewisham, Lee, and Charlton; being about one mile and a half in length from east to west, by three-fourths of a mile in breadth from north to south. The direct distance of its nearest part from St. Paul's, London, is five miles S. E. There are several fine prospects from different parts of this plain, which, together with its elevated situation, has occasioned a great number of elegant villas to be erected upon it. Its name of Blackheath is derived, as some consider, from the appearance of the soil, or, as others think, from its bleak situation. The last conjecture of course assumes that *black* is a corruption of *bleak*. On this heath is dug a kind of gravel, which is much in request for making garden-walks. The Roman road from London to Dover is supposed to have crossed Blackheath nearly in the same direction with the present road. Dr. Plot says that its course appeared very plainly in his time; but the surface of the heath has been so much altered of late years that little or no trace of such a road can now be discovered. Many Roman antiquities have however been found on the edge of the heath, particularly in that part nearest to Greenwich; and some tumuli or barrows of large dimensions still exist.

In the early part of the eleventh century the Danes (whose fleet lay off Greenwich) appear to have remained encamped for some time at Blackheath, whence they made excursions into the interior of Kent, committing dreadful ravages wherever they went. In one of these excursions they spoiled the city of Canterbury, and carried away the archbishop (Alphege), whom they detained for several months in their camp, and in the end slew, on his refusing to pay a large sum of money as a ransom. In 1831 Wat Tyler, Jack Straw, and John Ball, remained for some time encamped on the heath with their numerous adherents. Jack Cade occupied the same position twice in 1450; and in February the following year, the king was met on the same spot by a large body of Cade's followers in their shirts, who craved his pardon on their knees. The same king (Henry VI.) in 1452 encamped upon Blackheath while preparing to withstand the forces of the duke of York (afterwards Edward IV.). In 1497 the Cornish rebels, headed by Lord Audley, pitched their tents on Blackheath, where Henry VII. gave them battle, defeating them with great slaughter, and taking prisoners their chiefs, who were afterwards executed.

Besides these melancholy occurrences many costly pageants and joyous meetings have been held upon Blackheath, in consequence of its being customary for the lord mayor and corporation of London, and sometimes even for the king and court, to proceed so far in order to give the meeting to illustrious foreigners from the continent, or to other great or popular personages who had been absent. Thus Henry IV., about the end of 1400, met on Blackheath, in great state, the emperor of Constantinople, Michael Palæologus, who came to solicit his assistance against the Turkish sultan, Bajazet. Hither proceeded the lord mayor and aldermen of London, with 400 citizens attired in scarlet, with red and white hoods, on Nov. 13th, 1415, to meet their victorious monarch on his return from France after the battle of Agincourt, and from hence conducted him to the metropolis with loud acclamations. The next year the same parties proceeded again to Blackheath to meet the emperor Sigismund, who came to mediate a peace between France and England, and was escorted by the citizens to Lambeth, where he was met by the king. In 1474 the municipal authorities clothed in scarlet, and 500 citizens in murrey gowns, met Edward IV. on Blackheath on his return from France. In the reign of Henry VIII. (1577) a solemn embassy from France, consisting of the admiral of France, the bishop of Paris, and others, with 1200 persons in their train, were met here by the lord admiral of England, with a brilliant retinue of above 500 persons. In the same year Cardinal Campejus arrived in England as legate from the pope, and was received with great pomp and ceremony by the duke of Norfolk and a great number of prelates, knights, and gentlemen, who conducted him to a magnificent tent of cloth of gold, where he put on his cardinal's dress, edged with ermine, and rode on in much state to London. This procession was however greatly surpassed in splendour by that which, in January, 1540-1, attended the meeting between Henry VIII. and Anne of Cleves, which took place on the heath, where a magnificent tent had been pitched for her reception. The king, who was at Greenwich, proceeded through the park to meet her, and afterwards conducted her to Greenwich, where they were married. Besides the immediate retinues of the king and princess, and nearly all the female nobility and other ladies, there were present 1200 citizens and others clad in velvet, with chains of gold.

There are two episcopal chapels in Blackheath, one in the parish of Lewisham, and the other in the extraparochial district of Kidbrook. Adjoining to the heath on the east is Morden College, founded by Sir John Morden, a Turkey merchant, for the support of decayed merchants, for whose benefit, among all the benevolent establishments of London, no provision had previously been made. Sir John erected the college in his own lifetime. It is a spacious brick structure, with two small wings, having corners and cornices of stone. The buildings form an inner quadrangle, surrounded by a piazza; and there is a chapel adjoining, together with a cemetery, for the members of the college. Over the front are the statues of Sir John Morden and his lady, and the hall contains their portraits, and that of Queen Anne. Sir John died in 1708; but the foundation did not enjoy the full benefit of his bequest until the death of his lady in 1721. The property which produced about 1200*l.* per annum several years since, now produces about 5000*l.* The government of the institution is vested in seven trustees, proprietors of India Stock, who nominate the pensioners, and appoint the treasurer and chaplain. The salary of both officers is 50*l.* per annum, besides the foundress' endowment for the chaplain, which at present yields him nearly 700*l.* a year; and they have both apartments in the college, where they as well as the pensioners must reside, except in case of sickness; but no other persons may reside or lodge on the premises. The pensioners, who are about forty in number, must be upwards of fifty years old. Each of them receives 5*l.* per month, and has a convenient apartment; but they all take their meals together at a common table. Their expenses in medicine, coals, candles, washing, and attendance, are defrayed from the funds of the college. The original endowment has been somewhat enlarged by additional benefactions.

Blackheath has two proprietary schools for boys, and there are several small schools supported by the resident gentry. (Hasted's *History of Kent*; Lysons's *Environs of London*, *&c.*)

BLACK JACK, a name by which zinc-blende is commonly known to the English miners.

BLACK LEAD. [See PLUMBAGO.]

BLACKLOCK, THE REV. THOMAS, D.D., a divine of the Established Church of Scotland, and a writer of poetry, was born at Annan, in 1721. Before he was six months old he lost his sight, and it was partly to this misfortune that he owed his future distinction. Being precluded from the usual enjoyments of youth, he imbibed a stronger love of learning, which his father, who was a tradesman of an intelligent mind, took pains to gratify by reading to his son the works of the best authors. His father did not possess the means of giving his son a liberal education, but notwithstanding this disadvantage his intellectual progress was very rapid, and the mental concentration which his loss of sight occasioned became habitual to him. At an early age he acquired some knowledge of the Latin language from his more fortunate companions who attended the grammar-school, and in his twelfth year he produced verses which indicated considerable talent. When he had reached his twentieth year his sister was united to a man above her own rank of life, and young Blacklock now enjoyed the advantage of mixing with more intelligent society. His father's death, which occurred not long afterwards, appears to have affected him in an extraordinary degree. During his life he had exerted himself in the most tender manner to prevent his son from feeling the utmost extent of his privation; and by never suffering him to go out of his sight without a guide, he had unfortunately encouraged a timidity of disposition to which, under different management, he would most probably have been a stranger. In a poem entitled 'A Soliloquy,' written after the death of his father, Blacklock expresses himself with much feeling, but with piety and resignation, on his helpless condition. Having been introduced to Dr. Stevenson, a physician of Edinburgh, this gentleman was so much struck with Blacklock's talents that he offered to take upon himself the charge of his education; and in consequence of this liberality he commenced his studies at the Edinburgh Grammar School in 1741, but they were interrupted in 1745 by the Rebellion, when he returned to his friends at Dumfries. He had in this interval made gratifying progress, had published a volume of poetry, and having been introduced to the family of the lord provost, whose wife was a native of France, he had acquired the French language during the intercourse to which it led. When affairs had resumed their ordinary course, he returned from Dumfries, where he had advantageously spent his time in the society of individuals of more than ordinary intelligence and acquirements, and continuing his studies for six years longer, made himself master of the Greek, Latin, and Italian languages. He was, in addition, a proficient in music, of which he was particularly fond. In 1754 a second edition of his poems was called for, and a 4to. edition was published in London by subscription in 1756, when David Hume and Mr. Spence, professor of poetry at Oxford, particularly exerted themselves to promote his interests.

Having completed his studies at the University, he was licensed in 1759 as a minister of the Gospel. In 1762 he married, and immediately after was ordained minister at Kircudbright in consequence of a crown presentation. Owing however to the hostility of his flock to this mode of church patronage, and also to the style of his preaching, which was too refined and philosophical for uncultivated tastes, he gave up the living after having held it two years amidst circumstances very painful to his sensitive mind. The small annuity which he accepted in its place was scarcely sufficient for his support, and in retiring to Edinburgh in 1764, he opened his house for the reception of a few young gentlemen as boarders, to whose studies and improvement he directed his attention with much success. In this position he continued for twenty-three years, until 1787, when the state of his health induced him to withdraw from these duties. He died after about a week's illness July 7, 1791. The degree of Doctor of Divinity had been conferred on him in 1766 by the University of Aberdeen.

In private life Dr. Blacklock was distinguished by the great mildness and gentleness of his disposition, which not even the nervous irritability to which he was subject could affect, by his ardent love of knowledge, and by the simplicity and modesty of his character. Singular as it may appear, his poems abound with faithful descriptions of natural scenery. Dr. Blacklock himself could not account for this; and having put it as a question, 'How shall we account for the same energy, the same transport of description, exhibited by those on whose minds visible objects were either never impressed, or have been entirely obliterated?' he confesses his inability to reply to it satisfactorily. This anomaly has since been explained by Professor Alison in his 'Essays on Taste,' Essay 2, chap. 3.

Dr. Blacklock was not only a poet but a writer on philosophy and theology. The following is a list of his works:—'An Essay towards Universal Etymology, or the Analysis of a Sentence,' 8vo. 1756. 'The Right Improvement of Time,' a sermon, 8vo. 1760. 'Faith, Hope, and Charity Compared,' a sermon, 1761. 'Paraclesis, or Consolations deduced from Natural and Revealed Religion,' in two Dissertations; the first supposed to have been written by Cicero, now rendered into English; the last originally composed by Thomas Blacklock, D.D. 1767. 'Two Discourses on the Spirit and Evidences of Christianity,' translated from the French, and published in 1768 without his name. 'A Panegyric on Great Britain,' a poem, 8vo. 1773. 'The Graham,' an heroic poem, in four cantos, 4to. 1774. In 1793 a posthumous edition of his poems was published by Mackenzie, author of the 'Man of Feeling,' with a Life of Blacklock. In addition to Spence and Mackenzie, the life of Blacklock has been written by Dr. Anderson and Mr. Gordon. [See BLIND, EDUCATION OF THE.]

BLACKMORE, SIR RICHARD, a physician, poet, and miscellaneous writer, was the son of an attorney at Corsham, Wilts, and was born about the year 1650. In his thirteenth year he was sent to Westminster School, whence he proceeded to Oxford, where he remained thirteen years. After this it is said that he was for some time employed as a schoolmaster. He then made a tour on the continent, in the course of which he took the degree of M.D. in the University of Padua. On his return to England he was chosen Fellow of the Royal College of Physicians, and commenced practice in the metropolis. His attachment to the principles of the Revolution procured him the appointment of physician to William III., and he was for some time one of the court physicians in the succeeding reign. He wrote several medical treatises, none of which are in any way remarkable, except perhaps one on the small-pox, in which, unfortunately for his professional fame, he combated the practice of inoculation. He also published an historical work: 'A true and impartial History of the Conspiracy against King William in 1695.' The numerous poems which he wrote are now nearly forgotten. His 'Prince Arthur,' an heroic poem in ten books, reached a third edition in 1696. The following year he published 'King Arthur,' another heroic poem in twelve books. Both these poems were published in folio. Besides the above, he wrote 'Eliza,' a poem in ten books, also printed in folio; 'the Redeemer,' a poem in six books; and 'King Alfred,' a poem in twelve books. Dr. Johnson remarks that 'the first of his epic poems had such reputation as enraged the critics; the second was at least known enough to be ridiculed; the two last had neither friends nor enemies.' In 1700 he published 'A Paraphrase on the Book of Job, and other parts of Scripture;' in 1716, two volumes of 'Essays;' in 1718, a 'Collection of Poems,' in one volume; and in 1721, 'A new version of the Psalms of David, fitted to the Tunes used in Churches.' In a paper addressed to the king, and signed by the two archbishops and fifteen of the bishops, this work was strongly recommended on account of its 'agreement with the original Hebrew, and its clearness and purity of English style.' In 1721 and 1725 he wrote in opposition to Arianism; and in 1728 he published a work entitled 'Natural Theology, or Moral Duties considered apart from Positive; with some observations on the desirableness and necessity of a Scriptural Revelation.' The 'Accomplished Preacher, or an Essay upon Divine Eloquence,' was published at his express desire after his death, which took place October 8, 1729.

Never perhaps was any writer the object of such general attack by his contemporaries as Sir Richard Blackmore. Nearly all the wits of his day seem to have joined in this confederacy. One topic of abuse against him was that he lived in Cheapside, whence he was sometimes called 'the Cheapside Knight,' and 'the City Bard.' Sir Samuel Garth addresses him as 'the merry poetaster at Sadler's Hall in Cheapside.' He was considered, *par excellence*, as the poet of dullness. In spite of these railleries he continued to put forth his 'heroic poems,' which display little art either in their plan or composition, and as little imagination. His professed object being 'to engage poetry in the cause of virtue,' he seems to have imagined that the graces of language were unworthy of his attention. The age had begun to show strong symptoms of distaste for the bulky folios and heavy writings of a preceding period; and this tendency Sir Richard himself had pointed out in one of his 'Essays,' where he remarks that 'even voluminous romances, the delight of the past age, are no longer demanded, but lie by as neglected lumber in the shops, while short novels and tales are become the common entertainment of those who are pleased with fictions of that nature.' Yet he must have imagined that *his* works would be exempt from the consequences of this revolution; and, confident in his own powers, he continued his course, regarding the attacks of his opponents with comparative equanimity. The intention of his 'Satire upon Wit' was to castigate the authors of works of an immoral tendency, and he took this opportunity of retaliating on his assailants. He always reprehended with severity the license of the stage, and, though no Puritan, lamented the licentiousness which succeeded the Restoration. It was probably this course, rather than the alleged dullness of his writings, that occasioned the ridicule of the day to be so strongly directed against him. The 'Creation,' a philosophical poem, is not undeserving of commendation; indeed there are several important testimonials in its favour. Addison states that it was 'undertaken with so good an intention, and executed with so great a mastery, that it deserves to be looked upon as one of the most useful and noble productions in our English verse.' Dr. Johnson, in his 'Life of Blackmore,' says that if he had written only this poem it 'would have transmitted him to posterity among the first favourites of the English Muse.' At a later day, Cowper, although he confesses that Blackmore has 'written more absurdities in verse than any writer of our country,' acknowledges that 'he shines in his poem called the "Creation."' Since this opinion was expressed this poem has been gradually sinking into the neglect which Blackmore's other writings experienced much sooner.

In November, 1713, Sir Richard commenced a periodical paper, called the 'Lay Monk,' which appeared three times a week. He was induced to undertake this publication from a belief that he could do good by it; but it only reached forty numbers. It may be mentioned to his credit that the purity of his private character was never once called in question by his most bitter critics. His temper was serious, and he was a firm supporter of what he considered the interests of virtue and religion.

(Johnson's *Lives of the Poets*; Cowper's *Letters*; *Biog. Brit.*)

BLACKNESS, situated in the parish of Carriden in Linlithgowshire, is a small sea-side village, on the south bank of the Forth, four miles east of Borrowstonness, five west of Queensferry, and about eighteen miles west from Edinburgh. Blackness appears to have been a Roman station; a stone with an eagle on it, and a Vespasian of gold have been found there, with numerous axes, pots, and several vases, evidently Roman. Blackness at one time was the port of Linlithgow. Blackness Castle, which stands on the point of a small peninsula projecting from the village into the Frith of Forth, was the principal state-prison in Scotland during the reign of James VI. At the union of Scotland and England, Blackness was one of the four forts agreed to be kept up in Scotland. It is now garrisoned by a master-gunner and barrack-master, and the defences are scarcely worth notice, consisting merely of a wall with a few port-holes and two irregular lofty towers.

(Sir Robert Sibbald's *History, Antient and Modern, of the Sheriffsdome of Linlithgow, &c.* Edin. 1710; Chalmers' *Caledonia*, vol. i. Lond. 1807; Chambers' *Gazetteer*, Edin. 1832; *East and West Views, and Plan of the Castle of Blackness*, King's Library, British Museum; Sinclair's *Statistical Account of Scotland*, vol. i.; Sibbald's *Theatrum Scotiæ;* Sibbald's *Portus, Coloniæ, et Castella Romana, &c.* Edin. 1811; Sibbald's *Historical Enquiries concerning the Roman Monuments and Antiquities in the North Part of Britain, &c.* Edin., 1707.)

BLACKPOOL, a watering-place on the coast of Lancashire, between the æstuaries of the Ribble and Wyre, is a village and chapelry in the township of Layton with Warbreck, in the parish of Bispham, and in the hundred of Amounderness; 4 miles S.W. of Poulton, 9 miles W.N.W. of Kirkham, 18 miles W.N.W. of Preston, 27 miles S.W. of Lancaster, and 235 miles from London. The dark peaty-coloured pool, from which its name is derived, is at the south end of the village, near a house called Fox Hall, once the residence of the Tyldesleys, but now a farm-house.

The situation of Blackpool gives it many advantages over the other watering-places along the same coast. Its elevation above the sea at low water is considerable, but in very high tides the spray is thrown against the buildings that run along the parade. On a favourable day, the promontory of Furness, the Cumberland hills, and the mountains of North Wales are distinctly visible, and at times the Isle of Man may be seen.

The tide does not recede from the shore, opposite the village, more than half a mile; when it comes in, if accompanied with wind, the force of the waters is so great that it has been found necessary to make an artificial barrier of stones against the bank to prevent its being undermined. The inroads upon the high clay cliffs that lie northwards of the village towards Norbreck, also in the parish of Bispham, show the encroachments of the sea in this direction. On the other side of the æstuary of the Ribble, near Southport, the contrary operation is going forward, large depositions of sand being made there. The extent of these encroachments in the neighbourhood of Blackpool cannot be clearly ascertained. Tradition states that a large stone, which is standing upon the sands above half a mile from the shore, called Penny Stone, marks the spot where a public-house formerly stood. However this may be, it is certain that the high tides occasionally wash down considerable portions of the banks. The old road to Bispham has long disappeared, and parts of the new road are rapidly following it.

Blackpool is recommended to visiters by the fine hard sands, and by the healthy bracing air, which however is too keen for persons labouring under some complaints. Many of the native inhabitants attain a great age. The shell banks on the north side of the village are large and numerous, and afford, along with an immense number of the more common sorts, marine specimens not found in any other locality. The clay and marl which compose the heights north of Blackpool, after falling down and being rolled about on the pebbles, form a kind of pudding, which, when hardened by the salt water and the air, becomes a stone, and is often used for gate-posts by the farmers.

The hotels are large, and occupy commanding situations facing the sea. In the same line with them, for about a quarter of a mile, is a number of lofty houses, chiefly for the accommodation of visiters, forming a long but irregular range of buildings in front of the sea, at the distance of about a hundred yards from the edge of the steep bank that keeps off the tide. On the water's edge of this bank is a broad terrace-walk, which forms the chief promenade of the place, between which and the houses is a road for carriages.

An episcopal place of worship was erected here in 1821, which is under the parochial jurisdiction of Bispham. There is also a free-school, where thirty boys are educated on the system of Dr. Bell. For the accommodation of the visiters, a news-room, a coffee-room, and a library, are open during the season.

The whole of the adjacent country, which is within the district called the Fylde, is one of the richest parts of the county of Lancaster. No trade is carried on in the village; but those persons who are not engaged in attending upon the visiters find employment in the fishing-boats, or in the fields. The population of Blackpool is about 800, exclusive of visiters, who, at the height of the season, amount to 800 or 1000 more.

BLACK ROCK, in the barony of Half Rathdowne and county of Dublin in Ireland, is pleasantly situated about midway upon the railroad lately completed between Dublin and Kingstown. Black Rock has long been a favourite watering-place, but the increased facility of communication is now likely to give the advantage to situations farther down the bay. The town has not latterly been on the increase, though at present (1835) it is improving.

BLACKROD, a chapelry and considerable manufacturing village in the parish of Bolton-le-Moor: it stands on the edge of some elevated ground, above the river Douglas, which forms its boundary on the N.E. and N.W., about half a mile from the main road between Bolton and Chorley, within two miles of Horwich, seven miles of Bolton, and five miles of Chorley.

Few of the inhabitants have been employed in agriculture for many years. In the census of 1801, out of 1623 persons, 1551 belonged to families engaged in manufactures, and the proportion appears to be rather increased than diminished in favour of trade by the returns of 1831, when the population was 2591 persons. The people are employed either in hand-loom weaving, or at the print and bleach-works in the adjacent village of Horwich. There are no cotton-mills or power-looms in the place. Nankeens were formerly the chief article of manufacture, but latterly many other sorts of cloth have been introduced, and are as much woven as the staple article.

Blackrod is a place of great antiquity, being the site, as some suppose, of the Roman station named *Coccium* by Antoninus, and *Rigodunum* by Ptolemy: Rigodunum however seems more likely to be Ribchester on the Ribble. The roads from it are visible in all directions, and the names of several villages are a memorial of their former existence. There is a curious natural phenomenon near Harley Hall, at the western end of the township, in what is called the Burning Well, from which a vapour rises, which by the application of fire will produce a considerable flame. The lower part of the township, called the Red Moss, has never been brought into cultivation, nor have any attempts been made until lately to drain it. Experiments are now being tried, by means of a machine propelled by steam, to effect such a drainage as will restore the whole tract of land, consisting of upwards of a hundred acres, to the purposes of agriculture.

The town presents little that is interesting; the houses are irregularly built in one long street, and generally of a mean appearance. The church, the only place of worship, except a chapel belonging to the Wesleyan Methodists, is an antient structure dedicated to St. Catherine, at the north end of the village. The living is a perpetual curacy in the gift of the vicar of Bolton, in the deanery of Manchester, and in the archdeaconry and diocese of Chester.

There is a free grammar-school, in which 100 scholars are educated. The income is returned at 140*l.* 4*s.*, besides which there are three exhibitions to Pembroke College, Cambridge. This school was originally endowed in 1568, by John Holm, who left property of the value of 8*l.* per annum to the school, and 5*l.* per annum for the maintenance of a scholar at the College of St. Mary, now Pembroke Hall, Cambridge, which property yields at present 80*l.* per annum. An estate which was bequeathed to the school by Elizabeth Tildesley of Bedford lets now for 120*l.* a year.

A fair is held at Blackrod annually, on the first Thursday after the 12th of July, for toys, small wares, &c. There is no market; the inhabitants attend either Bolton or Chorley. A petty sessions is held once a fortnight at Horwich, where cases of a trifling nature are heard, but the more important business connected with the township comes before the bench of magistrates at Bolton. (Baines's *History of Lancashire; Communication from Lancashire.*)

BLACK SEA, THE, is said to have received its present name from the Turks, who, being accustomed only to the navigation of the Archipelago where the numerous islands and their convenient ports offered many places of refuge in case of danger, found the traversing of such an open expanse of water, which is subject to heavy storms, very perilous, and accordingly they expressed their fears by the epithet 'black.' Partly on the same account, and partly because the shores of this sea were occupied by very uncivilized and barbarous nations, the antient Greeks first called it ἄξενος (*áxenos*, inhospitable); but afterwards, when the art of navigation had been so far improved that they no longer feared the dangers to be encountered in navigating it, and had succeeded in establishing numerous colonies on its shores, they changed its name from ἄξενος to εὔξενος (*eúxenos*, hospitable). This unsatisfactory explanation of the name, like many others of the kind, must be attributed to the fondness of the Greeks for turning every foreign name into one that had a resemblance to some term in their own language, and consequently thus became significant. The Greeks sometimes called this sea simply Pontus, or the sea.

The Black Sea divides the southern provinces of Russia from Anatolia or Asia Minor, and extends in length nearly 700 miles between 28° and 41° 30′ E. long., and 41° and 46° 40′ N. lat. Its breadth on the west between the mouth of the Dnieper and the opposite shore near the Bosporus is nearly 400 miles; in the middle, where it is narrowed by the projecting peninsula of the Crimea, the narrowest part hardly exceeds 160 miles, but farther east it enlarges again to 300 miles, which width however decreases towards its eastern extremity. The space which it occupies is calculated by German geographers at upwards of 180,000 square miles. It is therefore smaller than the North Sea (260,000 square miles), but larger than the Baltic (160,000 square miles).

The Black Sea is connected with the Sea of Azof by the straits of Yenikalé or of Kaffa, and with the Archipelago and the Mediterranean by the Bosporus, the Sea of Marmora, and the straits of the Dardanelles. By the first it receives the drainage of a part of Southern Russia, and by the second it sends off the surplus waters which are not lost by evaporation.

With the exception of the Whang-Hai (or Yellow Sea) there is probably no portion of the ocean which receives the drainage of a greater extent of country than the Black Sea. By far the greatest part of its basin belongs to Europe. This portion may be indicated by lines drawn from Constantinople to the sources of the Inn, thence to those of the Dnieper, and then to those of the Medwidicza, a branch of the Don rising near Saratow. From Saratow the boundary runs near the banks of the Volga, and approaching the shores of the Caspian Sea at the sources of the Manish, terminates at the eastern extremity of the Black Sea. The countries included by these lines, all of which modern geographers consider as belonging to Europe, occupy an area exceeding 860,000 square miles, and consequently nearly one-fifth of the whole surface of this division of the globe. This extensive surface is drained by numerous large rivers, among which are the Danube and the Dnieper, the largest rivers of Europe, if we except the Volga. That part of the basin of the Black Sea which is considered as lying in Asia, probably contains somewhat less than 100,000 square miles, and runs from the eastern extremity of the sea along the river Rion or Fas (the Phasis of the antients) up to its source. Hence it follows nearly a straight line, drawn south-west to the most southern branch of the Kizil Ermak (the antient Halys). From this place the boundary line runs in a north-western direction between the sources of the Bujuk Minder (Mæander of the antients) and of the Sakaria (Sangarius), and following at a small distance the shores of the Sea of Marmora, terminates on the Bosporus, or straits of Constantinople.

As the basin of the sea comprehends 960,000 square miles, and its surface contains only 180,000 square miles, t follows that each square mile of its surface receives the drainage of five and one-third of a square mile. This will account for the small degree of saltness of its waters. Their specific gravity, compared with that of fresh water, is 1142 to 1000. The water of the Atlantic is 1288; but it contains more salt than the water of the Baltic, the specific gravity of which is only about 1039 or 1042.

The shores of the Euxine present a very varied aspect. From the Bosporus eastward the coast is rather low as far as Cape Baba, though the hills are never far from the coast. From Cape Baba to Cape Karempi (Carambis), and hence to Sinup (Sinope), and even to the mouth of the Kizil Ermak, the high lands advance close to the shore: then follows a low shore, which extends as far as Cape Yasoun (the Jasonium of the Greek geographers), the formation of which is ascribed to the alluvions of the three rivers, the Kizil Ermak, the Casalmak, and the Tharmeh, which empty themselves into the sea within these limits. To the east of Cape Yasoun, up to the mouth of the Rion, and hence to Anapa, to which place the western extremity of Mount Caucasus extends, the coast is alternately low and high, the offsets of the mountains which enclose the sea at no great distance advancing frequently to the very shores. The shores of the island of Taman, which on the east advances to the straits of Yenikalé, are very low and marshy. But though the peninsula of Kertch, which forms the opposite shore of the straits, rises into considerable elevations, the coast continues low and sandy as far as the town of Kaffa. West of Kaffa however the mountain-range of the Yaila rises to a considerable height, and skirts the shore to Sevastopol, so that in some places it rises to some hundred feet, especially to the east of Sevastopol. The remainder of the shore, as far as the mouth of the Danube, is low and sandy, and continues so to Mangalia (about 44° N. lat.) north of Cape Shabla, where the western offsets of the Balkan Mountains approach the sea. Here the shore becomes rocky, but does not rise so high as between the port of Varna and Cape Emineh. South of this cape the rocky shore continues to the straits of Constantinople, but rises to a moderate height only in a few places.

The navigation of the Black Sea is neither difficult nor dangerous: it is almost entirely free from islands and rocks. In its whole extent there is only one small island, called Ilan Adassi, uninhabited, and lying under 45° 15′ N. lat. at a considerable distance from the western shore. Rocks never occur except near Cape Kerpen, about sixty miles east of the Bosporus; nor are shoals frequent. They are only found near the straits of Constantinople; also near Sinup, and at the mouth of the Dnieper, of which the first, called the sands of Domusderé, extend three miles, gradually deepening. In all the other parts the Black Sea is rather deep, the bottom of it not having been found by lines of 120 and 140 fathoms, except towards the coast, where at a distance of two or three miles it varies from twenty to thirty fathoms, and in many places, as off the mouth of the Danube, the soundings decrease so gradually and exactly, that the distance from the shore may be known by soundings within half a mile. It is remarkable, that exactly in this part of the Black Sea a shoal is placed by Polybius, which, as he says, extends for more than a thousand stadia in length, and on which vessels often ran aground by night. But Arrian, in his 'Periplus of the Euxine,' does not mention it, and we must, for this and other reasons, suppose that Polybius was misinformed.

Storms are not uncommon, but they are never of long duration. The sea is however short and troublesome, more especially about the entrance of the channel of Constantinople. In summer the prevailing winds blow from north-east and north, but in the sea these winds are more variable than in the channel itself, where they are almost constant during the whole summer, and ships sometimes lie here wind-bound for three months. These northern or north-eastern winds extend as far as the island of Tenedos in the Archipelago. In autumn, winter, and spring, the winds are often southerly and various.

Another disadvantage to navigation arises from some of the northern ports being frozen up from the end of December or the beginning of January to the end of February or the beginning of March. This is always the case with the ports between the Crimea and Odessa. The harbour of Odessa is not often frozen up, but the navigation is rendered unsafe during a considerable time by drift ice. Kaffa is open and safe all the year, though the straits of Yenikalé are completely frozen over, and the navigation of the sea of Azof is impracticable during the whole winter. Sevastopol and the other ports of the Crimea are never frozen.

By far the greatest quantity of water is received by the Black Sea at its north-western corner, where the Dnieper, Bog, Dniester, and Danube fall into it. Most of the countries through which these rivers run are covered for three or four months of the year with snow; and in spring-time all the moisture which has descended on them during the winter, and has been preserved in a solid state, suddenly dissolves and descends in the channels of the rivers with great velocity and in an immense volume. It then produces a very rapid current along the western shores from the mouth of the Dnieper to the channel of Constantinople: this current always exists, and is strong, especially in summer, during the prevalence of the northern and north-eastern winds. The accumulation of the waters towards the straits of Constantinople is so great, that the Bosporus is not able to carry off all of it, and a portion is pressed against the coast of Anatolia, where it gives rise to another current running eastwards, as to which however it is not certain whether it is constant or not. Rennell recognizes the effects of this current in the alluvions between the mouths of the rivers Kizil Ermak, Casalmak, and Tharmeh, and again in the peculiar form of the island of Taman. He is inclined to think that a current runs round the whole of the Black Sea with a varying degree of velocity, and at no great distance from the shore.

Harbours are numerous, and many of them good. The principal are Burgas and Varna, south of the mouth of the Danube; Kilia, on the northern arm of that river; Akhierman or Akerman, on the æstuary or Liman of the Dniester; Odessa, Oczakow, Nicolaief, Cherson, and Kinburn, on the Bog and Dnieper, and their common æstuary; in the Crimea, Eupatoria or Koslow, Sevastopol, Balaclava, and Caffa. The harbours round the eastern shore, as Anakria, Kopi, Poti, Batumi, are not known because they are not visited. On the coast of Anatolia are the harbours of Rize, Trebizond, Tereboli, Kerasun, Samsun, Sinup, Ineboli, Erekli, and Kerpen.

The Black Sea was navigated at an early period by the Greeks. The discovery of the channel which leads to it from the Archipelago is probably indicated by the fable of Helle and Phrixus; and the first voyage to it, in the expedition of Jason. It is not unlikely that some dispute respecting the free navigation of the Black Sea gave rise to the Trojan war, because Ilium was so situated that it could hinder vessels from entering the straits of the Dardanelles. At a later period the Greeks, and more especially the Ionian Greeks of Miletus, formed numerous establishments along its shores, from which they exported slaves, cattle, and corn in great quantities. The ports of the Crimea and the region near the Borysthenes exported large quantities of grain to Athens and the Peloponnesus, which trade we find mentioned in Herodotus (vii. 147) as existing at the time of the invasion of Xerxes, B.C. 480. Under the Romans the shores of the Euxine became pretty well known, and a 'Periplus,' or kind of survey, of this sea is among the works attributed to Arrian. In the times of the Byzantine emperors, Constantinople drew from it a considerable part of its provision; and in the twelfth century the Genoese formed some establishments on its north-eastern coast, and carried on a very active commerce overland with India. But when Constantinople was taken by the Turks, the commerce and navigation of the Black Sea were nearly annihilated, their policy being averse to permitting foreign vessels to pass the straits of Constantinople. Thus the Black Sea remained closed to the seafaring nations for two centuries. But when the northern shores had fallen into the hands of the Russians, they wished to procure a free trade to the ports of the Mediterranean, and they obtained their object in the peace of Kontshak Kainardge. Though the Russians themselves were not able to derive any great advantages from the free commerce, the inhabitants of the Greek islands began to navigate the Black Sea under Russian colours: and from that date the Greeks began to acquire wealth and a desire for liberty. Up to the present time the number of Greek vessels is by far the greatest in this sea. They export the corn, hides, timber, iron, and furs of Russia, and import wine, fruits, and the manufactures of England and France. Between the northern and southern shores of the Black Sea the commercial intercourse is not great: the produce of the Anatolian shores, which consists of grain, timber, and copper, not being in demand in Russia, which exports the same commodities.

We do not find any notice of any considerable fishery being now carried on in the Black Sea, except at the entrance of the straits of Yenikale, where a considerable number of sturgeons are taken. The great depth of the sea and the want of sand-banks and shoals account for the absence of fisheries. Strabo (p. 320, Casaub.) describes the pélamys as issuing from the Mæotis, the sea of Azof, in shoals, and following the coast of Asia to Pharnacea and Trapezus (Trebizond). The chief fishery was about Sinope (Sinup) and Byzantium, which latter town derived considerable wealth from the fishery. [See AZOF.]

Some modern geographers have supposed, that at a very remote period the desert country which extends between the Sea of Azof and the northern part of the Caspian was covered with water, at which time the Black Sea and the Caspian were united. As this hypothesis is supported by very strong arguments, we shall examine it under the head of CASPIAN SEA.

(Strabo, p. 124, &c., *Casaub.*; Rennell *On the Comparative Geography of Western Asia*; *A Concise Account of the Commerce and Navigation of the Black Sea*, Lond. 1805; and Captain Jones's *Travels through Russia.*)

BLACKSTONE, SIR WILLIAM, an English judge, is best known as the author of 'Commentaries on the Laws of England.' He was born in London, July 10th, 1723, a few months after the death of his father, who was a silk-mercer; he had also the misfortune to lose his mother at an early age. His education was carefully superintended by an uncle, who sent him, when about seven years old, to the Charter-house, where at the end of five years he was placed on the foundation. At the age of fifteen he was at the head of the school; and in his sixteenth year he removed to Pembroke College, Oxford. Having selected the law as his profession, he entered the Middle Temple, on which occasion he wrote the verses entitled 'the Lawyer's Farewell to his Muse,' which were printed in Dodsley's Miscellany. He had displayed some ability as a writer of small pieces, and also had obtained a gold prize medal for verses on Milton. In 1743 he was elected fellow of All Souls College, Oxford, and three years afterwards was called to the bar. After an experience of seven years in the Courts at Westminster, during which he discovered that his talents were not calculated to ensure him any very eminent professional rank, he withdrew to his fellowship at Oxford, intending to lead an academic life. In 1749 he was appointed recorder of Wallingford, Berks, on the resignation of his uncle.

As the University of Oxford did not afford facilities for studying the principles of the English constitution and laws, he resolved upon supplying the deficiency by a course of lectures. This course opened in Michaelmas Term, 1753, and was so well received, that it was repeated with additions for a number of years. The advantage of rendering such a course of lectures permanent being fully demonstrated, a gentleman named Viner left by will a provision for this purpose. In 1758 Blackstone was appointed the first Vinerian professor; and from the assiduity with which he discharged the duties of the situation, he attracted a large class of students. Among his hearers was Jeremy Bentham, then sixteen years of age, and resident at Queen's College, Oxford. According to his own account, even then Bentham did not share in the almost universal applause bestowed on the lectures. (See Bentham's *Preface to the second edition of the Fragment on Government*, London, 1823.) Having been requested to read his lectures to the Prince of Wales, Blackstone declined the honour, as he did not think himself at liberty to break his engagements with his class at Oxford; however, he sent copies of many of the lectures to be read to the young prince. Bentham also states, on the authority of Lord Shelburne, that 'the lord introduced the lecturer (to the king), and made the monarch sit to be lectured: so he himself told me.' To this no doubt Blackstone mainly owed his future promotion.

Having been engaged as counsel in a contested election (for he occasionally practised), the right of copyholders to vote came under his consideration, which circumstance led him to publish his opinions on this question. He denied their right, and the enemies of popular privileges being glad to find themselves thus supported, the consequence was an act of parliament taking away the franchise from this description of electors.

The popularity of his lectures, together with the publication of a new edition of the 'Great Charter and Charter of the Forest,' accompanied by an historical preface, prepared the way for his return to the law courts in the metropolis, where he was soon engaged in extensive practice. He entered parliament in 1761, and sat for Hindon. The ministry of Lord Bute marked their approbation of his conduct, by granting him, in 1762, a patent of precedence to rank as king's counsel, and by appointing him solicitor-general to the queen in the following year. He had previously declined the office of chief justice of the Court of Common Pleas in Ireland. About this time he married Sarah, eldest daughter of James Clitheroe, Esq., of Bostonhouse, Middlesex, by whom he had nine children, seven of whom survived him. As he lost his fellowship by marriage, the Earl of Westmoreland, then chancellor of the University of Oxford, appointed him principal of New Inn Hall: a year afterwards he resigned this appointment, as well as the Vinerian professorship.

The first volume of the 'Commentaries on the Laws of England' was published at Oxford, in 1765. The three volumes appeared not long afterwards. The work called forth an anonymous pamphlet, entitled 'A Fragment on Government,' the author of which was the late Jeremy Bentham. Dr. Priestley also made a fierce attack on some of the opinions which the work contained, relative to offences against the doctrines of the established church. On the question 'whether a member expelled was or was not eligible in the same parliament,' the opinions which Blackstone expressed in the House of Commons being deemed contradictory to his writings, he was attacked in a pamphlet, understood to be written by one of the members. He defended himself in a pamphlet, which 'Junius' noticed in his 'Letters.' With Priestley and 'Junius,' and the author of the 'Fragment on Government,' as his opponents, the ministry of the day (Lord North's) naturally became his protectors and continued their favours towards him. In 1770 he was offered the situation of solicitor-general, which he declined. He was then made one of the justices of the Court of Common Pleas. The motto which he chose for the rings distributed on such occasions was 'Secundis dubiisque rectus.' Previous however to his patent being passed, Mr. Justice Yates expressed a wish to retire from the Court of King's Bench into the Court of Common Pleas, an arrangement to which Sir W. Blackstone, from motives of personal regard, at once consented. Four months afterwards, on the death of Mr. Justice Yates, he removed to the Court of Common Pleas; a change which Bentham says was very agreeable to Blackstone, who found his position as puisne judge on the same bench with his 'scorning and overpowering Chief' (Lord Mansfield) exceedingly uncomfortable. He sat in the Court of Common Pleas till his death, which occurred Feb. 14th, 1780, from a dropsical complaint.

As a judge, Sir William Blackstone had a great respect for the usages and formalities which surround the bench, and he strove to impress others with the same feeling. His political sentiments were of the class called moderate. He disliked the contentions of parties, and one of the consequences of his elevation, on which he most congratulated himself, was his removal from the House of Commons, 'where,' as he used to observe, 'amidst the rage of contending parties, a man of moderation must expect to meet no quarter from any side.' His talents for business were very superior; and some offices which he had undertaken at the University he discharged with great advantage to the interests of those concerned. He kept his own accounts with rigorous exactitude. His brother-in-law, who drew up a memoir of his life, which is prefixed to the 'Reports' published after his death, says that 'he was an excellent manager of his time, and extremely rigid in observing the hour and minute of an appointment.' It may be stated, on the same authority, that in private life he was a cheerful and facetious companion; a faithful friend; an affectionate husband and parent; economical, but at the same time charitable and generous. He was severe to those less strict than himself in the observance of the ordinary duties of life; and as he advanced in years, his temper, which was somewhat irritable, was rendered worse by a nervous affection. Bentham says, that he 'seems to have had something about him which rendered breaches with him not difficult.' This 'something,' to judge from an anecdote (told in the preface to the second edition of the 'Fragment'), was a very considerable idea of his own importance. The university of Oxford contains several memorials to his honour. In 1784, a beautiful statue by Bacon was erected in All Souls College, and in one of the windows of the chapel belonging to this college are placed his arms. His portrait was presented to the picture-gallery by the scholars on the Vinerian foundation.

The 'Commentaries' have been edited by Coleridge, Archbold, Williams, Chitty, Christian, and Lee, each of the six editions in four volumes 8vo. with notes. They have been abridged by Curry, and also by Gifford, published in the form of letters in one volume 8vo., and 'elucidated' by Jones. With the exception of Burn's 'Justice,' perhaps no law book, and few books of any kind, have had a sale equal to that of the 'Commentaries.'

(*Life of Sir W. Blackstone*, by Clitheroe: *Life*, by Thomas Lee, Esq.)

On the appearance of the fourth volume of Blackstone's 'Commentaries,' Dr. Priestley published some remarks on those passages which related to the dissenters. The pamphlet is dated Leeds, July, 1769. The passages which Priestley selected for his animadversions were in the chapter entitled 'Of Offences against God and Religion,' p. 50: 'These penalties were framed . . . . poison the minds of the people:' and p. 52. . . 'Both papists and protestant dissenters, &c. . . but have never yet been able to execute.' (See first edition.) The pamphlet of Priestley is written with great acrimony and considerable vigour. He exposes in a pointed manner the slovenly style and illogical language of Blackstone, and the singularly perverted view which he gives of the historical origin of the difference between the church and the dissenters. But Priestley's views of religious obligation, as expressed in this pamphlet, were hardly consistent with the duty of civil obedience, as strictly and truly understood (see pp. 18, 19, of his pamphlet): and in his notions of what he calls 'the natural rights of mankind,' 'the natural rights of man, when once he is entered society,' and in his invectives against the Catholic religion (p. 46.), he showed that he had not more enlarged and correct views of the nature of civil society, and not much more real tolerance than the author of the 'Commentaries.' 'The Reply' of Blackstone (dated Wallingford, 1769) is in a calm and moderate, but feeble tone, and forms a curious contrast with the vigorous argument and somewhat scurrilous invective of Priestley. The commentator admits that one of the passages animadverted upon is 'somewhat incorrect and confused;' but declares that his views towards the dissenters are very different from what Dr. Priestley imputes to him, first, by assuming that he (Blackstone) quoted with approbation the statute of 9 and 10 Will. III. (directed mainly against those who deny the doctrine of the Trinity), which statute Blackstone quoted simply without either approbation or disapprobation; and, secondly, by omitting to quote the passages that followed, in which the author of the 'Commentaries' asserts, among other things, 'that the sin of schism, as such, is by no means the object of temporal coercion and punishment.' 'Dr. Priestley,' says Blackstone, 'hath attributed to me the adoption of those principles which I only meant to mention historically, as the causes of the laws which I condemn.' In fact, Blackstone's looseness of style and confusion of the proper subject of his 'Commentaries,' positive law, with all other subjects that are any way related to it, laid him justly open to censure; but Priestley, though an acute and ingenious controversialist, neither detected the real source of the lawyer's confusion, nor cleared the ground for a fair discussion of the matter. On one legal point, Priestley, both in his original pamphlet and in a subsequent one, entitled *An Objection, &c. considered* (London, 1770), has the advantage, when he combats Blackstone's doctrine derived from the act of union with Scotland, 'that any alteration in the constitution of either the Church of England or Scotland, or in the Liturgy of the Church of England, would be an infringement of those fundamental and essential conditions,—and greatly endanger the union.'

Several of these obnoxious passages were modified or cut out in subsequent editions of the 'Commentaries.' (See a note on the pamphlets of Doctors Priestley and Furneaux against Blackstone, in Bentham's Preface to his *Fragment on Government.*)

It would take more space than we can spare, to express in the briefest terms the eulogiums that have been pronounced on the 'Commentaries.' Sir W. Jones says they are 'the most correct and beautiful outline that ever was exhibited of any human science.' Niebuhr (*Roman Hist.* vol. i. p. 320. Engl. Transl.) has dignified the author with the title 'great'—'That great writer, Blackstone.' It is sufficient to quote the testimony of one editor to the same effect, which may be taken as that of all—'It has been said that this work, for a single production, is the most valuable which has ever been furnished to the public by the labour of any individual,' and 'to the truth of this proposition' the editor (Mr. J. Chitty) 'assents.'

The number of testimonials in favour of the 'Commentaries' is doubtless much greater than the number which can be quoted against them. The weight of opinion perhaps lies on the other side. A short notice of Bentham's 'Fragment on Government' is necessarily connected with the history of the 'Commentaries;' and Bentham's reasons, if they were good for any thing then, are equally good now. (*A Fragment on Government; being an Examination of what is delivered on the subject of Government in general in the Introduction to Sir W. Blackstone's Commentaries, with a Preface*, London, 1776.—Second edition, 1823.)

In the admirable Preface to his 'Fragment,' Bentham clearly points out the fundamental error of Blackstone, the source of his endless confusion. 'There are two characters,' he says, 'one or other of which every man who finds any thing to say on the subject of law may be said to take upon him; that of the expositor, and that of the censor. To the province of the expositor it belongs to explain to us what, as he supposes, the law *is;* to that of the censor, to observe to us what he thinks it *ought to be.*—Of these two perfectly distinguishable functions, the former alone is that which it fell necessarily within our author's province to discharge.' These two provinces Blackstone has confounded all through his work: he continually mixes up with his exposition of what the law *is*, the reasons *why* it is so; and as the reasons frequently appear not the best in the world, it often happens that the absurdity of the law, which, if simply stated by itself, would have been regarded as a fact and nothing more, is surpassed by the absurdity of the reason given for it. Hence arises, as Bentham remarks, the continual use of the words *for*, *because*, *since*, by Blackstone. 'I must own,' says Bentham, 'that I have been ready to grow out of conceit with these useful little particles *for*, *because*, *since*, and others of that fraternity, from seeing the drudgery they are continually put to in these "Commentaries." The appearance of any of them is a sort of warning to me to prepare for some tautology, or some absurdity: for the same thing dished up over again in the shape of a reason for itself: or for a reason which, if a distinct one, is of the same stamp as those we have just seen.' The instances to which Bentham refers are a fair specimen of the whole work, and two or three will serve for illustration as well as a larger number, which may easily be collected from almost every page.—'Burglary cannot be committed in a tent or booth erected in a market fair: though the owner may lodge therein: *for* the law regards thus highly nothing but permanent edifices; a house, or church, the wall or gate of a town; and it is the *folly* of the owner to lodge in so frail a tenement.' 'There needs no formal promulgation to give an act of parliament the force of a law, as was necessary by the civil law with regard to the emperor's edicts: *because* every man in England is, in *judgment of law*, party to the making of an act of parliament, being present thereat *by his representative.*' The law, according to the 'Commentaries,' first says that a man is present where he is not and cannot be, and then, according to a general principle, turning this fiction into a fact, very properly concludes, that as the man was present when the law was made, it is quite unnecessary to give him any further notice of it. The observation about the emperor's edicts is of the same stamp: the emperor, the sovereign and maker of all law, was obliged by the law, that is, by himself, formally to promulge his edicts. (See *Blackstone*, i. 68. Chitty's edition, where he himself quotes the Code to prove that the emperor was the sole maker of law; see also Bentham's *Preface, note* on the *ubiquity* of the king, and the consequences that *follow*, according to Blackstone, from this *attribute.* This note is a good specimen of the admirable humour of Bentham.)

This kind of objections applies to every part of the 'Commentaries:' the author has not kept to his province of stating what law is, but continually goes out of his way to give reasons which are not required nor wanted. (See an instance in the chapter on the Law of Descents, in the short paragraph beginning 'We are to reflect,' &c., ii. p. 211, Chitty's ed., which the utmost attainable degree of confusion pervades; the remark on the policy of allowing a man to devise his lands by will, ii. p. 374: and the remark on the 'piety of the judges,' ii. 375.) Blackstone is only excusable for mixing up his reasons with his law, when he traces the history and historical causes of a law: and even here, and in all matters that belong to the constitutional history of the country, he has long since been pronounced to be very far from profound by very competent judges. His illustrations derived from the Roman law, which are not unfrequent, are not always pertinent, and sometimes not correct. His learning, though not wanting in surface, was evidently deficient in depth.

But it is the introductory part of Blackstone's 'Commentaries,' consisting of four chapters, which contains the matter that is the special subject of the remarks in the 'Fragment on Government.' In the first chapter of the 'Fragment,' the writer discusses the passage in Blackstone beginning 'The only true and natural foundations of society,' . . to . . 'define their several rights and redress their several wrongs.' It is only necessary for a man to read this passage attentively, to discover that it contains no exact meaning at all, and that if it did contain a meaning, that meaning would be of no use for the object of the 'Commentaries.' It is observed by Bentham, and correctly, that the author, in the passage referred to, uses the term society in two different senses: in the first part of the passage, it means government, and certainly can mean nothing else, if the whole is to have a consistent meaning. In the second part of the passage society means something which preceded government, that is, a society which preceded the society mentioned in the first paragraph; but what this precedent society is, we are not told. It cannot be government, as in the first paragraph it is. If it does mean anything, it means what Blackstone has called in the first paragraph a *state of nature*, which *state* he further declares never existed. Blackstone in this same passage ridicules the notion of an original contract, which however may very well have been a fact for any reason that he gives to the contrary. Again, he says that 'in nature and reason an original contract must always be understood and implied, in the very act of associating together:' and to complete the whole he asserts (p. 52.) that in a certain case, referring to our own government, 'The legislature would be changed,' he says, 'from that which *was originally* set up by the general consent and fundamental act of society.' The following remark of Bentham briefly and pointedly states the exact character of the whole of Blackstone's Introduction, though applied by the writer specially to the two paragraphs referred to:—'Throughout the whole of it, what distresses me is, not the meeting with any positions, such as, thinking them false, I find a difficulty in proving so: but the not meeting with any positions, true or false (unless it be here and there a self-evident one), that I can find a meaning for. If I can find nothing positive to accede to, no more can I to contradict. Of this latter kind of work, indeed, there is the less to do for any one else, our author himself having executed it, as we have seen, so amply.'

In the last edition of Blackstone, published in 1829 (*Commentaries*, &c., with copious notes by Thomas Lee, Esq., of Gray's Inn, Barrister at Law), the life of Blackstone prefixed to the first volume terminates with the following extract from the Preface to the 'Fragment:'—'He (Blackstone) it is, in short, who, first of all institutional writers, has taught jurisprudence to speak the language of the scholar and the gentleman: put a polish on that rugged science: cleansed her from the dust and cobwebs of the office: and if he has not enriched her with that precision that is drawn only from the sterling treasury of the sciences, has decked her out, however, to advantage, from the toilette of classic erudition: enlivened her with metaphors and allusions: and sent her abroad in some measure to instruct, and in still greater measure to entertain, the most miscellaneous and even the most fastidious taste.' This somewhat dubious praise Bentham gave to the author of the 'Commentaries,' that he might not, while 'exposing the author's ill deserts, be backward in paying homage to his various merits.' But to do full justice both to the author of the 'Commentaries' and the author of the 'Fragment,' it will be necessary to continue the citation of the panegyric one short paragraph further, with which the compliment concludes. 'The merit to which, as much perhaps as to any, the work stands indebted for its reputation, is the enchanting harmony of its numbers: a kind of merit that of itself is sufficient to give a certain degree of celebrity to a work devoid of every other. So much is man governed by the ear.' We do not find any other reference to the 'Fragment on Government' in this last edition of Blackstone (we have only examined the notes on the Introduction) than the first part of the panegyric to which we have supplied the conclusion. If any student has bewildered, or is still bewildering himself with trying to find out a meaning in Blackstone's Introduction, in threading a labyrinth to which there is no clue, he may probably find the solution of his difficulties in the five chapters of Bentham's 'Fragment.'

This little work, in which the utmost severity of reasoning is united with the greatest imaginable felicity and perspicuity of expression, with the happiest and most playful humour, and the most pointed sarcasm, without the appearance of ill-nature, is still further recommended by the sincerity with which every line in it is stamped. It is not difficult to understand why this corrective to Blackstone's absurdities only reached a second edition in 1823.

It remains briefly to notice, and more briefly than the importance of the subject demands, the arrangement of the matter of law in Blackstone; for with the facts of law as stated by him we have little to do. The work as far as it goes is useful; at least, on this point there is not so much difference of opinion. In Blackstone's chapter on the 'Absolute Rights of Individuals,' we have his fundamental definition of law, which, coupled with his views contained in the Introduction, will sufficiently account for the confusion that prevails in numerous passages. (See vol. i. p. 133, and indeed the whole of the chapter entitled 'Of the Absolute Rights of Individuals.') In this chapter he says that the 'primary and principal objects of law are rights and wrongs.' 'Rights' he subdivides into, 'first, those which concern and are annexed to the persons of men, and are then called *jura personarum*, or *the rights of persons*; or they are, secondly, such as a man may have over external objects or things unconnected with his person, which are styled *jura rerum*, or the *rights of things.*' He divides *wrongs* into *private* and *public*, the foundation and the nature of which division must be sought in those writers who adopt it. (See Blackstone, i. 122, &c.) In his division of his matter into these great heads, and the subdivision of these heads into their several parts, Blackstone followed the Analysis of Hale, though, so far from improving upon it, his division and arrangement are very much inferior. His method is styled by Professor Austin, 'a slavish and blundering copy of that very imperfect method which Hale had roughly delineated in his short and unfinished "Analysis." From the outset to the end of his "Commentaries," he blindly adopts the mistakes of his rude and compendious model: missing invariably, with a nice and surprising infelicity, the pregnant but obscure suggestions which it proffered to his attention, and which would have guided a discerning and inventive writer to an arrangement comparatively just.' (See Austin's *Outline of a Course of Lectures on General Jurisprudence.*)

The singular confusion in Blackstone's notion of the rights of persons and things is rendered still more apparent by comparing the 1st chapter of vol. ii. 'of Property in General,' with the beginning of chap. 2. of the same vol ii., where he comes to speak of the division of property into things *real* and *personal*, according to the system of English law. He borrowed the terms (rights of persons and things) from Hale's 'Analysis,' who however has used them in a sense far less objectionable than that of Blackstone.

BLACKSTONE CANAL, in the United States, extends from Worcester in the centre of the state of Massachusetts, in a S.S.E. direction to Providence in Rhode Island. It follows, in the greater part of its course, the valley of the Blackstone river, from which it derives its supply of water. Its entire length is forty-five miles; its breadth at the surface is thirty-five feet, and at the bottom eighteen feet: the depth of water is four feet. The fall, from the summit at Worcester to tide-water at Providence, is 451·61 feet. The canal has forty-eight locks, eighty feet long by ten wide. It was formed by a company incorporated by charters of the Massachusetts and Rhode Island legislatures, and was completed in 1828 at a cost of 600,000 dollars. (*American Almanac for* 1833.)

BLACKWALL. [See LONDON.]

BLACKWATER, the principal river of the county of Essex, called also the Pant and Freshwell in the early part of its course. It has its source near Debden, in the north-east part of the county, on the borders of Cambridgeshire, and, after a winding course through Bocking and Coggeshall approaches Witham, and receives the stream which passes through that town; then, flowing south-east, it unites with the Chelmer at Maldon, after which it widens and forms the extensive æstuary to which it gives the name of Blackwater Bay, by which it enters the German Ocean. The course of the river, including its chief bends, is about forty-five miles; but the direct distance between its source and the sea does not exceed thirty miles. This bay is celebrated for its oysters, called Wallfleet oysters, which Camden conjectures to be those which, according to Pliny, supplied the Roman kitchens,—to which Mucian gives the third rank after the Cyziceman oysters, which he describes as 'larger than the Lucrine, and sweeter than the British;' and which, finally, Ausonius calls 'wonderful.' In high tides the waters cover a large tract of country at the mouth of the Blackwater river. Whence it derived its name is not known. 'But,' says Camden, 'Ptolemy calls it Idumanus, which signifies the same, *Ydu* being *black* in British.'

(Gough's Camden's *Britannia*; *Beauties of England and Wales, &c.*)

BLACKWATER, the chief river of the county Cork, in Ireland, rises on the confines of Kerry, and flows westward by Mill Street, Mallow, Lismore, and Cappoquin; it thence runs southward to the sea, which it enters at Youghall, between the counties of Cork and Waterford. The Blackwater is not navigable to any considerable distance above its æstuary at Youghall, but the loss of carriage arising from its rapidity is counterbalanced by the gain of immense water-power which it affords to the rich corn country on its north bank. On the south its course is bounded by a continuous chain of lofty mountains. Beginning from the west, the highlands of Muskerry (the old Slieve Logher) run into the Boghra range, and these again are continued by the chain of the Nagles, which bound the valley to the borders of Waterford. The river's chief feeders come from the more open country on the opposite bank: these are the Alla, the Awbeg (the 'gentle Mulla' of Spenser), the Funcheon, and the Araghlin. The scenery all along is highly beautiful and picturesque, and a recent tourist has lately pronounced the descent of the Blackwater from Mallow to Lismore equal to that of any other river of its size in Europe. It is celebrated for salmon, although its fish have not so fine a flavour as those of the neighbouring Lee. This is the river to which Spenser (whose castle of Kilcolman stands near its junction with the Awbeg) alludes in the lines

> 'Clear Awnidaff, that of the Englishman
> Is called Blackwater.'

(*Statistical Survey of the Co. Cork;* Inglis's *Ireland in* 1834.)

BLACKWATER, a river of the county Armagh, in Ireland, runs in a north-easterly direction from the confines of Tyrone and Fermanagh, and flows by Blackwater town and Charlemont into the south-western extremity of Loch Neagh. Its ancient name was Avon More, or the great river, a title merited only by comparison with the smaller streams of the district. The Armagh Blackwater is not remarkable for anything except its historical importance, as having long been the boundary between the jurisdiction of the English Pale and the independent country of the Tyrone O'Neills. To restrain these turbulent chieftains, Sir John Perrot, in 1584, after passing through their territory on an expedition into O'Kane's country (now Londonderry county), first proposed the erection of a fort which might command the passes into Armagh, and keep O'Neill's neighbouring places of Dungannon and Benburb in check. It was the planting of this garrison which proved the proximate cause of Tyrone's *great rebellion*: and as the most important battle gained by the Irish during that insurrection was fought in the immediate vicinity, the Blackwater derives considerable interest from this circumstance. O'Neill made this fort the bone of contention: it was on account of violences committed by its garrison that he justified his first rising in arms as in his private quarrel, and it was taken and retaken again and again before he finally compromised his loyalty to the queen. At length, however, in 1598, Captain Williams, the warden, being closely pressed by a powerful force of the Irish under O'Neill, O'Donnell, and Maguire, Marshal Bagnal marched to his relief at the head of a well-appointed army. A considerable proportion of the soldiers were Irish in the queen's pay, and with them many of the young native nobility. Of these the most distinguished was *the queen's O'Reilly*, sirnamed Maelmurry Dhas, or the Handsome. This force in point of numbers was inferior to the insurgent army, but in discipline and equipment much superior. They marched from Armagh before daybreak, and early in the morning the action commenced. O'Neill had intrenched himself behind a shallow stream flowing through a marsh; the place was called Athbury, or the yellow ford, from the colour of the soil. Being approached through woods and narrow passes, it gave the Irish advanced guard an opportunity of galling the English march for half an hour before they got upon the plain. Here O'Neill had employed a stratagem similar to that of Bruce at Bannockburn: the ground was set thick with covered pitfalls, and the men at arms charging across the open fields were at once thrown into confusion. But, in spite of this check, the English passed the ford, and drove their antagonists to their trenches. The artillery was now brought up, and still, notwithstanding the bursting of a field-piece and the explosion of a powder cask, the assailants had again the advantage. Marshal Bagnal, at the head of his men, charged over the levelled breast-work, and neither O'Neill nor O'Donnell, though distinguished leaders, and fighting at the heads of their respective names, could maintain their ground. The victory now seemed won, when Bagnall received a shot in the head which killed him instantly, and the clans returned to the conflict. O'Neill himself led his galloglasses to the charge: the English, disheartened by the death of their leader, gave way; the Irish pushed their advantage, and drove them back upon the ditch: here they got entangled in the trenches, and the rout became general; the slaughter was very great, and multitudes were trodden to death. Few of the English repassed the ford. The Irish historians attribute the preservation of those who did escape to the loyalty of O'Reilly, who covered the retreat, and was almost left alone on the field before he fell. The victory was complete: Armagh and the fort of Blackwater surrendered next day, and the remnant of the English army returned to Newry. The English loss is estimated at from 1500 to 2500 men, with all the baggage, ammunition, and artillery. It may seem that undue importance is attributed to an action where comparatively few were engaged on either side; but among the petty skirmishes of that desultory war up to this time, Athbury is by far the most worthy of the name of battle, and its effects were so important that, in less than three months, there were thirty thousand men in arms in various parts of the country against the queen. The confiscations of the counties soon after led to the colonizing of Tyrone with men who no longer required the maintenance of a garrison for their control, and the fort went to decay. Blackwater town is now an inconsiderable place, but has a good linen market, and is in the centre of a rich and flourishing district.* (Cox's *History of Ireland;* O'Sullivan's *Hist. Cathol. Hib. Compend.*)

BLACKWELL, THOMAS, was born at Aberdeen in 1701. His father was one of the ministers of that city, and filled at the same time the office of principal of Marischal College. After having taken the degree of A.M. in the University of Aberdeen, at the age of seventeen, and been appointed by the crown professor of Greek in the Marischal College in 1723, he succeeded his father as principal in 1748. In 1752 the degree of LL.D. was conferred upon him. He had the merit of introducing an improved system of education into Marischal College, and before his death had the gratification of witnessing its success. An account of this plan was printed by direction of the college authorities.

Blackwell is allowed to have been a man of considerable acquirements, but he often rendered himself ridiculous by his pedantry and affectation of universal knowledge. He was well versed, according to the learning of that day, in the Greek and Latin writers, and was acquainted with the principal languages of modern Europe. His habits were studious and retiring, but he rather courted the acquaintance of men of superior reputation. He was abstemious to a degree prejudicial to his health. Being afflicted with a consumptive disease, he left Aberdeen in the month of February, 1757, with a view of trying the effect of a change of air, but he died at Edinburgh in the following month.

The following is a list of his works:—'An Inquiry into the Life and Writings of Homer,' 1735. 'A Key to the Inquiry, containing a translation of the numerous Greek, Latin, Spanish, Italian, and French notes in the original work,' 1736. 'Letters on Mythology,' 1748. 'Memoirs of the Court of Augustus,' 3 vols.: the first was published in 1753, the second in 1755, and the third, which is incomplete, was published in 1764, after his death.

BLADDER, THE, of urine, or *vesica urinaria*, so called to distinguish it from the gall-bladder, is a musculo-membranous bag or pouch, which serves as a temporary reservoir for the urine; it communicates with the kidneys by means of the ureters, and opens externally by means of the urethra.

The urinary apparatus is confined to the red-blooded classes of animals, all of which have kidneys, whilst some orders and genera have no urinary bladder. In quadrupeds the bladder is of a pyriform shape, and is completely surrounded by the peritonæum or serous lining of the abdomen; and it may be taken as a general rule, that it is smaller, stronger, and more muscular in carnivorous than in graminivorous animals: in the latter it is almost membranous, and in some of them is particularly large.

In the whole class of birds there is no urinary bladder, and the ureters open into the clo
bag, which takes the place of the rectum, bladder, and uterus, and serves as a reservoir for the solid excrements, the urine, and eggs. The urine in these animals dilutes the fæces and forms the carbonate of lime, which constitutes the basis of the shell. The urinary bladder exists in several genera and species of fishes. In the human subject, the bladder is placed in the pelvis, or basin, immediately behind the symphysis pubis and before the rectum, or terminal portion of the intestines, in the male; but it is separated from it in the female by the uterus and vagina. Its form and relations vary according to the age of the individual. In infancy it is of a pyriform shape, and is contained almost entirely in the abdomen, thus resembling its permanent condition in quadrupeds. At this period it may be considered as consisting of three portions, the narrow tapering part, or *neck*, the upper rounded portion, or *fundus* (sometimes called *summit*), and the intermediate portion, or *body*; but as the pelvis expands, the bladder gradually subsides into it and undergoes a remarkable change of form. Thus, in the adult

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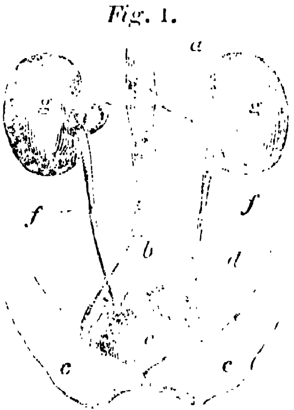
* There are three other Blackwaters; one in the county of Meath, which passes Kells, and falls into the Boyne at Navan; another in the county of Longford, which falls into the Shannon north of Lanesborough; and a third in the county of Wexford, which reaches the sea at Bannow Bay. The general name is taken from the ordinary appearance of deep streams: but O'Sullivan, in his etymology of that near Armagh, has this characteristic passage—'Vel quod aliis Hiberniæ fluviis lucidis et puris turbidior fluit, vel quod ipsi Angli nigro et adverso Marte ad illum sæpe signa contulerant.'

its figure is that of a short oval, compressed at the fore and back part; its lower surface subsides on the rectum, and expanding forms what is termed by anatomists the *bas fond* of the bladder. This change of form is dependent not only upon the enlargement of the cavity in which the bladder is contained, but also upon the weight of the fluid which it habitually sustains, and thus in advanced age it is more deeply sunk in the pelvis than in the middle periods of life. In the female its transverse diameter is greater than in the male, in consequence of the antero-posterior diameter of the pelvis being encroached upon by the uterus. Its capacity varies in the different periods of life: and, as a general rule, it may be said to increase in proportion as the individual advances in years, and to be greater in females than in males. Its capacity is modified in different individuals by their habits and the natural exercise of its functions. It is more particularly changed by disease: thus, from the effects of long-continued irritation, it may be reduced to such a state that it will not contain more than a few drops of urine; and on the contrary when, from any cause, its contents cannot be duly evacuated, it may be distended so as to contain many quarts of urine, and occupy a large proportion of the abdomen. Its ordinary capacity may be estimated at a pint and a half.

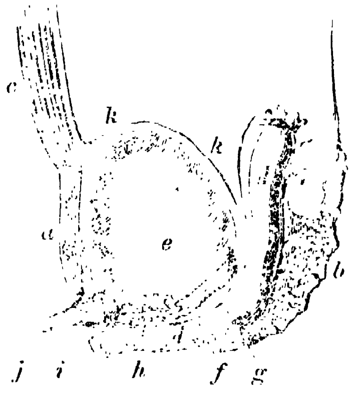
Fig. 1.



[The Ureters, running from the Kidneys to the bladder.]

a Aorta. *b* Bifurcation. *c* Abdominal muscles turned down. *d* The Rectum cut and tied. *e* Bladder. *f f* Ureters. *g g* Kidneys.

Fig. 2.



[Side view of the Bladder of an adult male.]

a Pubes. *b* Sacrum. *c* Recti muscles. *d d* Rectum. *e* bladder. *f* Vas deferens. *g* Ureter. *h* Vesicula seminalis. *i* Prostate gland. *j* Urethra. *k k k* Peritonæum, reflected from rectum upon bladder, thence upon the recti muscles.

The direction of the bladder is oblique, being inclined somewhat forwards and upwards; in proportion to the degree of distension the obliquity is increased, in consequence of the neck being fixed. It is retained in its position by two lateral ligaments, one on each side, and an anterior ligament; the lateral ligaments are prolongations of the *fascia iliaca*, which, passing down into the pelvis, assumes the name of *fascia pelvica*, and becomes identified with the prostate gland and side of the bladder; the anterior ligament is double, and it is formed by the *fascia transversalis*, which, passing down behind the symphysis pubis, is reflected upon the upper surface of the prostate gland; from the point of reflection two strong fasciculi of fibres pass to the anterior surface of the bladder. These ligaments are sometimes called the proper ligaments of the bladder to distinguish them from certain folds of the peritonæum, sometimes called false ligaments. As the bladder is peculiarly interesting in a surgical point of view, anatomists have endeavoured to describe it precisely, and with this view they have divided it into six regions or surfaces, an anterior, a posterior, two lateral, a superior, and an inferior.

The anterior surface, in the collapsed state of the organ, lies behind the symphysis pubis, with which it is connected by loose cellular tissue; when distended, the bladder rises, and its anterior surface comes in relation, or in contact, with the recti muscles of the abdomen. The posterior surface is covered by the peritonæum, which in the male is reflected upon it from the rectum, in the female from the uterus and vagina: it is then reflected from the sides of the bladder to the *iliac fossæ*; at the points of reflection it forms folds, one on each side and two posteriorly: these have been improperly described as ligaments, for instead of confining the bladder they serve rather as provisions to facilitate its expansion.

The lateral regions are partially covered by the peritonæum: running along them we find the umbilical arteries, or their remains, in both sexes, and the vasa deferentia in the male. The *superior region*, or fundus, is partially covered by the peritonæum, which is reflected thence on to the inner surface of the recti muscles: it has a fibrous cord attached to it termed the *urachus*, which lies between the peritonæum and the recti muscles, and being accompanied by the remains of the umbilical arteries, extends to the umbilicus, where it becomes identified with the abdominal *aponeuroses*. This fibrous cord appears to be useful in retaining the bladder in its situation, for never in the human subject, except in certain cases of malformation, which are very rare, does it present the form of a canal, such as it is found to be in the young of certain quadrupeds, in which it is the medium of communication between the bladder and a bag, or sac, termed the allantoid.

The inferior region, or *bas fond*, is the most important in a surgical point of view. It has no precise lines of demarcation laterally, but is bounded before by the prostate gland, behind by the peritonæum, which is reflected upon the posterior surface of the bladder. Attached to it we find in the male the vesiculæ seminales and the vasa deferentia, which, in converging to the prostate gland, leave between them a triangular space, where the bladder is only separated from the rectum by a considerable quantity of fatty cellular tissue containing many vessels, principally veins: this relation of the bladder to the rectum explains many circumstances respecting their particular diseases. In the female this region rests on the vagina, which separates it from the rectum. We have seen that the anterior and inferior regions of the bladder are left completely uncovered by the peritonæum, a fact which is of the utmost importance to the surgeon, for in consequence of it he is enabled to perform operations on these regions without injuring this membrane, which when wounded in any operation places the life of the patient in a hazardous state, in consequence of the rapidity with which inflammation extends along it.

The *neck*, or constricted portion of the bladder, is compared to a truncated cone, longer at the sides and below than above. In infancy, owing to the position of the bladder, its direction is oblique: for a similar reason it is horizontal in the adult: it differs in structure from the rest of the organ. The neck, which is formed of a somewhat fibrous whitish substance, is the connecting medium between the bladder and the urethra. Its posterior part rests on the rectum; its anterior is surrounded, at least below and at the sides, by the prostate gland, which is peculiar to the male, and is composed of an aggregation of mucous follicles, disposed so as to form three lobes, one on each side of the neck of the bladder, and one below called the middle lobe, which forms a slight projection into the opening of the urethra.

The bladder, like the other hollow viscera, is composed of three layers, or coats, united to each other by cellular tissue; these coats are the *peritoneal* or *serous*, the *muscular*, and the *mucous*. The *peritoneal coat* has been already described as investing only a portion of the organ: it is united to the *muscular coat* by cellular tissue, which is extended over the whole of the latter, being however thinner under the peritonæal coat than elsewhere. The *muscular coat* has been described by some anatomists as a distinct muscle under the name of *detrusor urinæ:* it is composed of pale fibres interlacing in all directions; three distinct layers have been described, but it is sufficient for all useful purposes to say, that the superficial fibres are directed in the course of the axis of the bladder; that at the sides they are more and more oblique; and that the more internal fibres assume a circular direction as they approach the *neck* of the bladder, so that some anatomists have described them in this part as a distinct muscle, under the name of *sphincter vesicæ.* This reticulated structure of the muscular coat enables the bladder to contract so perfectly as to expel every drop of its contents.

When the bladder is much distended, the *muscular coat* becomes attenuated to such a degree, that it is difficult to distinguish it from cellular tissue. Sometimes its fibres become so much enlarged from the effects of long-continued irritation and overaction of the organ, that they form projecting lines or columns under the *mucous coat;* this appearance of the bladder is designated by the French *Vessie à colonnes.* The mucous membrane is occasionally protruded between these columns, forming sacs, or pouches, in which urinary calculi are sometimes lodged; these calculi are then said to be *encysted* or *sacculated.* The muscular coat is united to the third, last, or mucous coat by a distinct layer of cellular tissue, to which the term *nervous* or *vascular* coat is sometimes improperly applied. The mucous coat, or lining of the bladder, belongs to that division of the mucous membranes, denominated *genito-urinary:* it not only lines the bladder, but is prolonged upwards along the ureters into the kidney, and downwards along the *urethra;* it is of a pale rose-colour, is smooth when the bladder is distended, and corrugated when it is empty; it secretes a viscid fluid termed mucus, which protects it from the acrimony of the fluid with which it is constantly in contact. Three openings are seen in it, two situated posteriorly, about an inch and a half from each other, which are the openings of the ureters; and one anteriorly, which is the opening of the urethra. Extending from the openings of the ureters to that of the urethra are observed two prominent lines, which are formed by muscular fibres elevating the mucous coat: these lines form the sides of a triangle, the base of which is an imaginary line drawn between the openings of the ureters; the apex is at the urethra. The space thus marked out is denominated the *trigone vesicale:* it is paler than the rest of the internal surface of the bladder, is possessed of peculiar sensibility, and is smooth in the contracted as well as in the distended condition of the bladder.

The two prominent lines which form the sides of the *trigone vesicale,* according to Sir C. Bell, are distinct muscles, the muscles of the ureters. They have their fixed point or *origin* at that prominence or tubercle existing at the inferior surface of the urethra, which has been already described as formed by the middle lobe of the prostate, their *insertion* or moveable point being at the opening of the ureters. Their use is to assist in the contractions of the bladder, to support and close the mouths of the ureters, and to preserve the obliquity of these canals by drawing them down during the contractions of the bladder. The tubercle, whence these muscles are supposed to take their origin, is termed the *luette* or *uvula vesicæ:* but these terms are more particularly applicable to it when enlarged and diseased. It then forms a prominent tumour at the orifice of the urethra, acts the part of a valve, and becomes a troublesome cause of retention of urine.

The arteries of the bladder are derived from the internal iliac and its branches; its veins empty themselves into the internal iliac vein: these vessels are most abundant about its neck and bas fond. The lymphatics follow the course of these vessels. The nerves are of two kinds, the one derived from the sacral plexus of the cerebro-spinal system, the nerves of animal life; the other derived from the hypogastric plexus of the sympathetic, the nerves of organic life.

The secretion of the urine is performed by the kidneys; it is constantly going on, and does not exhibit those alternations of action and repose observable in the other secreting organs. The rapidity with which certain diuretics are eliminated with the urine has induced several physiologists to imagine that fluids are conveyed from the stomach to the bladder by a more direct route than the circuitous one of absorption and of the circulation. But no ducts or channels which could answer this purpose have been discovered, nor is their existence necessary, for it is calculated that 1000 ounces of blood circulate through the kidneys in the space of an hour; and if only a tenth part of this be separated by the kidneys, 100 ounces, or seven pounds and a quarter, may be given out in this short space of time. It is not however improbable that the lymphatics may convey fluids directly from the stomach to the bladder.

The urine being secreted, dribbles along the ureters, and its descent is probably aided by the contractility of these tubes and the impulse of the neighbouring arteries. It drops into the bladder and gradually distends it, but it is prevented from regurgitating into the ureters in consequence of these tubes taking an oblique course between the muscular and mucous coats before they perforate the latter. As the urine accumulates, these tubes are more and more compressed, and the obstacle to regurgitation is increased; but the column of urine descending along the ureters, being higher than that contained in the bladder, is not prevented from entering into it.

When a sufficient quantity of urine is accumulated in the bladder, varying according to the degree of irritability of the organ, a general uneasy sensation is produced, and a more particular one referred to the *trigone vesicale;* the diaphragm and abdominal muscles are called into action, the resistance of the neck of the bladder is overcome (the sphincter, if we admit its existence, relaxes), the muscular fibres of the bladder contract, and are able without further assistance to evacuate every drop of its contents.

Congenital malformations of the bladder are not unfrequent. Morgagni describes a case in which it was of a prismatic form, another in which it was of double its natural length, and another in which the fundus was as large as the bas fond. Haller observed it much and permanently constricted at its body. Sometimes the bladder is altogether wanting, in which cases the ureters open either into the rectum, as into the cloaca of birds, at the pubes, or immediately into the urethra. But a more frequent malformation is that, where the inferior portion of the recti muscles being imperfect, and the anterior wall of the bladder deficient, the posterior wall is protruded, and forms a red fungous-like tumour above the pubes. This tumour presents two orifices which are the mouths of the ureters, from which the urine constantly dribbles; this species of malformation is peculiarly interesting, as it has enabled physiologists to determine the manner in which the urine distils into the bladder. In some rare cases of imperforation of the urethra, the urine, being prevented from escaping by this canal, has dilated the urachus and escaped at the umbilicus or navel. M. Deschamps, however, imagines that all the cases which have been described as dilatations of the urachus are not in reality such, but that the muscular coat of the bladder having given way in some point, the mucous coat has been protruded or extended by the pressure of the urine, has followed the course of the umbilical cord, and then burst at the umbilicus. Cases are on record of individuals who have had more than one bladder. Thus, Blassius describes a case in which it was double. Mollinetti found in a female whom he dissected five kidneys, five ureters, and five bladders. It sometimes but rarely happens, that the bladder is divided into cells, but this species of malformation in all probability is not congenital. The bladder is liable to inflammation, which may invade the totality of the organ or its coats separately; and this may be acute or chronic. When the mucous membrane is inflamed, the organ becomes exceedingly irritable, and there is a constant call to discharge its contents. In consequence of inflammation, ulcers, gangrenous spots, and indurations of different kinds may be produced, and its secretion may be increased and altered: to this state the term catarrh of the bladder is applied. Sometimes the parietes of the bladder become exceedingly thick. The mucous membrane sometimes is found in a varicose state: it sometimes gives origin to cysts of different kinds, and fungous growths, which latter are found more particularly in old people; sometimes also it protrudes through the muscular coat and forms herniæ. Many cases are on record in which worms have been discharged from the bladder. The bladder is sometimes protruded through the inguinal or femoral canals, forming a hernia of the bladder, or cystocele, which is always readily distinguished from other herniæ by the regular diminution of the swelling when the urine is passed.

Various accidents and diseases may prevent the bladder from evacuating its contents, in which case the organ becomes inordinately distended, and unless relieved, the distension increases, inflammation ensues, a spot mortifies, the urine escapes into the abdomen, and death is speedily the result. Such is the process by which the bladder relieves itself, and it never, under such circumstances, is lacerated or burst, as it is ordinarily said to be; such a result is never produced except by direct violence. With respect to these cases of retention of urine, there is a fact which never should be lost sight of, viz. that after the third day or so from the date of the retention, the urine, as it descends from the kidneys, is evacuated from the bladder in small quantities. At this period the bladder is distended as much as possible, and the case may be mistaken for one of *incontinence* of urine, though it is, as we have seen, one of *retention.* If under these circumstances a catheter cannot be introduced, the only means left for relieving the patient is puncturing the bladder, which may be effected through the perinæum, through the rectum, or above the pubes; the bladder, as we have seen, is not covered by the peritonæum in these regions. But the most important disease to which the bladder is liable is the formation of urinary calculi or concretions in it. When they are present and not encysted they produce intense suffering; and as medicines possess no certain power over them, the ingenuity of surgeons has been exercised in order to devise means of removing them. These means are reducible to three: when small, they may be extracted through the urethra by a pair of forceps, invented for the purpose: when larger, they may be reduced to pieces so small as to pass away with the urine, or they may be removed by cutting into the bladder; to the former method the term Lithotrity, to the latter that of Lithotomy is applied. [See LITHOTRITY and LITHOTOMY.]

BLADDER-NUT. [See STAPHYLEA.]

BLADDER-SENNA. [See COLUTEA.]

BLADENSBURG. [See WASHINGTON.]

BLAIN, a small town in France in the department of Loire Inférieure (Lower Loire), on a cross road from Ploërmel and Rédon to Ancenis and Angers. It is in 47° 30′ N. lat., 1° 47′ W. long. The town is on the north or right bank of the little river Isaac, which flows into the Vilaine. The population in 1832 was 4899 for the whole commune. There is an hospital for the poor. Blain was the birth-place of the Duc de Rohan, chief of the Protestant party in France in the reign of Louis XIII., and one of the most remarkable men of his day.

BLAIR-ATHOL. [See ATHOL.]

BLAIR-GOWRIE, a parish and borough of barony (*i. e.* a borough governed by a bar,) in Perthshire, Scotland, is situated four miles from Cupar Angus, and about fifteen from Perth. The southern part of the parish lies in the beautiful valley of Strathmore: it is about eleven miles long from south to north, and in some places eight miles broad, but the breadth is very irregular. The village is on the south side of the Ericht, which divides it from the village of Rattray. It lies on the east side of a range of hills, at the northern boundary of the valley of Strathmore; and when seen from these, the windings of the Ericht, generally hidden but occasionally coming into view, have the appearance of a number of lakes scattered over the plain. Blair-Gowrie was made a borough of barony by a charter from Charles I. in 1634.

There are the remains of several Druidical temples in the parish. At the back of the manse, in 1796, there was a mote-hill or circular mound, where, it is said, Earl Gowrie held his regality courts. There are also some cairns, in one of which when opened a small stone coffin was found at the bottom; and many tumuli run through the parish. Not far from the village, commanding a fine view of Strathmore, is Newton House, built somewhat in the style of a castle, on the foundation of the old house, in a vault of which many gentlemen were saved while it was burned down. Two modes of catching salmon are practised on the Ericht at this place. One is by *poke-nets*:—Towards twilight, the fishermen throw into the stream near the Keith Falls, where it runs through deep narrow channels among the rocks, large quantities of black mould, until the water becomes muddy. Nets in the shape of *pokes* or bags are then put into the narrowest parts of the stream, and in them the salmon are caught. The other method is by pikes or poles with sharp points, and iron hooks at the end of them, with which the fishermen, on a dark night, strike the fish the moment they are attracted to the surface by the glare of torches held from the rocks above the dark parts of the stream.

The village consists of one principal street, which winds irregularly to the Bridge of Ericht, and from which almost all the other streets branch off. There is a good town-house lately built; and an apartment in the principal inn is occupied as a reading-room. The parish church is a new and handsome building, placed high on the side of a hill at the back of the village. There are two dissenting meeting-houses: the Antiburger Meeting-house, conveniently situated near the town-house; and the Congregational Chapel in William Street, at the south end of the village. They are capable of containing nearly 400 persons each, and the parish church may seat about 1000. The town is governed by a baron baillie. It has a post-office. There are several thriving manufactures carried on in the place. The annual value of the real property in the parish as assessed in April, 1815, was 6206*l.*; and the population in 1831 was 3644. It has three annual fairs.

The clergyman's stipend, as fixed by a decreet of the Court of Teinds in 1791, is five chalders of grain (two-thirds of meal and one-third of bear), with 45*l.* sterling of money, and 5*l.* for communion elements. The glebe contains nine and a half acres, of which four and a half are good soil.

In the parish school, English reading, writing, arithmetic, book-keeping, and mathematics are taught. The whole emoluments of the teacher, exclusive of a free house, did not exceed, in 1796, 22*l.* a year. There are several private schools in the village.

The poor's fund arises from the interest of a small stock, the collections at the church doors, the dues of the mortcloths, and the rents of the seats in the galleries of the church. It is of course variable in amount.

(*From communications with Blair-Gowrie;* Sinclair's *Statistical Account of Scotland,* vol. xvii.; Chambers's *Gazetteer;* Chalmers's *Caledonia; Comparative Account of the Population of Great Britain; Enumeration Abstract of Population Returns, &c.*)

BLAIR, HUGH, D.D., a divine of the Church of Scotland, was born in Edinburgh, April 7, 1718. He was educated at the University of Edinburgh, and took his degree of A.M. in 1739. In 1741 he was licensed to preach, and was soon after appointed to the living of Colessie in Fifeshire. In 1743 he was appointed second minister of the Canongate Church, Edinburgh; in 1754 he was presented to the ministry of Lady Yester's Church, Edinburgh; in 1757 the University of St. Andrews conferred upon him the degree of D.D.; and in 1758 he was removed from Lady Yester's to be one of the ministers of the High Church, which is what is called a collegiate charge, or one in which the duties are divided between two clergymen. He was indebted to his merits alone for this success. While at the university he had been a diligent student. In going through an extensive course of reading he made abstracts of the most important works, in order to render his acquaintance with them more intimate and accurate. To aid and methodise his historical reading, he and a few of his fellow-students constructed chronological charts, in which they arranged the principal historical facts which they met with in the course of their studies.

An 'Essay on the Beautiful,' which he wrote while a student, was regarded as highly creditable to his taste and abilities. His advancement having lightened his professional labours, he was enabled to bestow more time on literary pursuits; and accordingly having prepared some lectures on 'Composition,' he read them to classes in the university, with the permission of that learned body. In 1762 the king erected and endowed a professorship of rhetoric and belles lettres in the University of Edinburgh, and appointed Dr. Blair, in consequence of his approved qualifications, regius professor, with a salary of 70*l.* The 'Lectures' were first published in 1783, when he resigned the professorship. On the controverted question of the genuineness of Ossian's poems, he published, in 1763, a 'Dissertation,' in which he supported their claims to originality. He was intimately acquainted with Macpherson, and his opinions seem to have been in some degree influenced by his partiality for the man, whom he thought incapable of imposition.

The career of Dr. Blair as a divine was marked both by its success and usefulness. By the time he had attained his fortieth year he was called upon to discharge one of the most important ministries in the church, and for the long space of forty-two years he was considered one of its greatest ornaments. Notwithstanding his popularity as a preacher, he had nearly reached his sixtieth year before he could be induced to publish a volume of his sermons. When however it appeared, it was received with an extraordinary degree of favour, although Mr. Strahan, the publisher to whom Dr. Blair had sent the manuscript, discouraged its publication; but the opinion of Dr. Johnson having been requested, he wrote to Mr. Strahan, stating that he had perused the sermon which had been forwarded to him 'with more than approbation.' The sale was so rapid and extensive, that the original sum paid for the copyright (100*l.*) was voluntarily doubled by the publisher; and 300*l.* were offered for the next volume. It is stated that Dr. Blair was paid at the rate of 600*l.* for each of the subsequent volumes. The fifth volume, which was published after Blair's death, consists of discourses written at different times; but it was carefully prepared for the press a little before his death in the eighty-second year of his age. In 1780 a pension of 200*l.* a year was conferred on him by the king, which he enjoyed till his death.

Dr. Blair did not possess a strong constitution, and towards the latter part of his life he was unable to fulfil his duties in the pulpit; but his intellect was unimpaired to the last, and his large congregation had still the benefit of his services as their friend and adviser. His counsel was sought not only by those around him, but it was frequently solicited from distant places, in which the benevolence of his disposition had been made known by his published discourses.

He married his cousin, Catherine Bannatine, daughter of a minister of Edinburgh, in April, 1748, and had two children, a son who died in infancy, and a daughter whom he lost in her twenty-first year. Mrs. Blair died a few years before her husband.

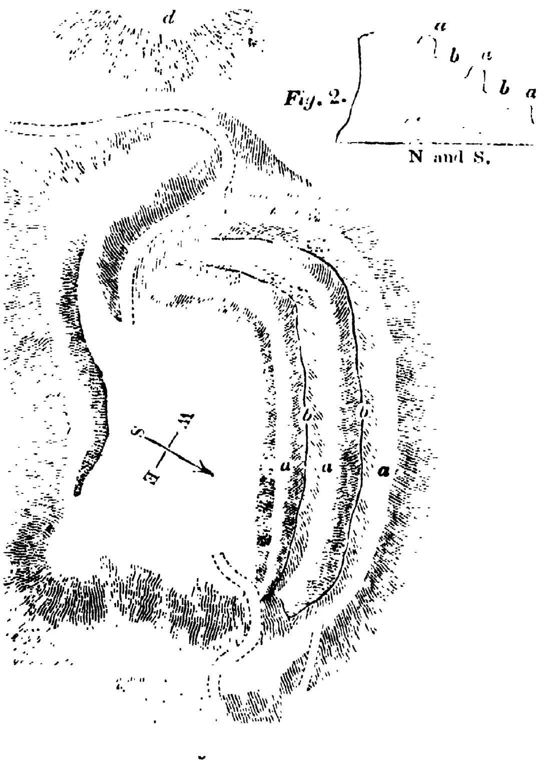
Dr. Blair's literary reputation rests upon his 'Sermons' and his 'Lectures on Rhetoric and Belles Lettres,' both of which have enjoyed a long period of popularity. The sermons appeared at a time when the elegant and polished style, which is their chief characteristic, was less common than at present; and to this merit, such as it is, they chiefly owed their success. They are still read by many people with pleasure, on account of their clear and easy style, and the vein of sensible though not very profound observation which runs through them; but they have no claim to be ranked among the best and most solid specimens of sermon-writing which our language contains. The 'Lectures' have not been less popular than the 'Sermons,' and have long been considered as a text-book for the student. They are however exceedingly feeble productions, and show no intimate acquaintance with the best writers antient and modern; nor do they develop and illustrate, as a general rule, any sound practical principles. The following remark by Dr. Whately, archbishop of Dublin, impliedly contains a just judgment of their merits. Alluding to Dr. Campbell's 'Philosophy of Rhetoric,' he observes, 'It is a work which does not enjoy so high a degree of popular favour as Dr. Blair's, but is incomparably superior to it, not only in depth of thought, and ingenious original research, but also in practical utility to the student.'

(Finlayson's *Life of Dr. Blair*, prefixed to his *Sermons*.)

BLAIR, JOHN, a relative of Hugh Blair, and well known as the author of a valuable set of chronological tables, went to London for the purpose of improving his fortune, and was at first engaged as teacher in a school. In 1754 he published 'The Chronology and History of the World, from the Creation to the year 1753, in fifty-six tables, by the Rev. John Blair, LL.D.' This work was dedicated to the Lord Chancellor Hardwicke. In the following year he was elected F.R.S., and in 1761 F.A.S. A second edition of his 'Chronology' appeared in 1768, to which were added maps of antient and modern geography. In September, 1757, he was appointed chaplain to the Princess Dowager of Wales, and mathematical tutor to the Duke of York, and in 1761 to a prebendal stall at Westminster. Six days afterwards, the vicarage of Hinckley, Leicestershire, having become vacant, he was presented to it by the dean and chapter of Westminster; and he obtained a dispensation to hold with it the rectory of Burton Coggles, Lincolnshire. In 1763 he attended his pupil, the Duk of York, on a continental tour, during which they visited France, Italy, Spain, and Portugal, and returned home after about a year's absence. He received several other pieces of church preferment, besides those above mentioned. His death took place June 24, 1782. A course of his 'Lectures on the Canons of the Old Testament, and a small volume entitled 'The History of Geography,' were published after his death.

BLAIR, ROBERT, author of a poem entitled 'The Grave,' was born in the year 1699. Few particulars are known respecting him. His father was one of the ministers of Edinburgh, and chaplain to the king; and after securing to his son the advantages of a liberal education at the university he sent him to the continent for his further improvement. On the 5th January, 1731, he was ordained minister of Athelstaneford, where he spent the remainder of his life. He had by his marriage a daughter and five sons, one of whom became solicitor-general for Scotland. He appears to have been in easy circumstances, was fond of gardening, and had a taste for botany; and these pursuits, together with a correspondence which he maintained on scientific subjects, engaged much of the time which was not required for the performance of his ministerial duties. In the pulpit he is said to have been serious and earnest. Watts and Doddridge honoured him with their esteem: he submitted his poem to them, and in a letter to the latter states that it was written before his ordination. Watts signified his approbation of this production, and offered it to two booksellers, who however both declined undertaking the publication. Blair seems to have anticipated the reception which it would meet, and attributed it to the serious nature of the subject. He had however endeavoured to conciliate public favour, for he says, in his letter to Doddridge—'In order to make it more generally liked, I was obliged sometimes to go cross to my own inclination, to make it go down with a licentious age which cares for none of these things.' It has been usually asserted that 'The Grave' was not printed until after the author's death, but the editor of Chalmers's *Biographical Dictionary* has stated that he had seen a copy which was printed in London in 1743. 'The Grave' is written in a striking and vigorous manner, and has always been most popular among persons of an uncultivated taste, possessing some strength of mind, and a serious disposition. With the exception of a short piece written in memory of Mr. Law, one of the professors of the University of Edinburgh, 'The Grave' is the only production of Blair's which we possess. The author died of a fever, February 4, 1746, in the 47th year of his age. Home, the author of 'Douglas,' succeeded him in his living. (Anderson's *Lives of Scottish Poets*.)

BLAISE HILL is one of a chain of antient fortresses which may be traced along the southern part of the vale of the river Severn, beginning at the Somersetshire Avon, and extending upwards of forty miles in a north-easterly direction, and so situated as to be capable of communicating



a a a, the ramparts; *b b* the ditches; *c c*, the ancient entrances; *d*, Kingsweston Hill; *e*, the entrance to the modern walks.

with each other by signal. Blaise Hill, which was a strong military post formed and occupied by the Britons, rises on the south-west above the village of Henbury, which is five miles north-north-west of Bristol. The entire hill is occupied by the camp, the area of which covers the summit, and on the declivities are the ditches and ramparts. The hill, which is conical, is apparently sixty feet high above the level of the field on the north-west, but much more above the valley on the south-east, where it is so precipitous as to be impregnable. The extent of the area from the rampart on the south-west to that on the north-east is about three hundred and twenty-four yards; the breadth is about a hundred and ten yards, and it contains probably from four to five acres. The sides of the hill are shaped into three ramparts (*a a a*), and two ditches (*b b*), as delineated in the plan and section (Fig. 1 and 2.) The ditches and ramparts are not complete all round towards the precipice: on each side they gradually decline into the general slope of the hill; but whether they have been levelled or were never finished does not appear. There are two entrances (*c c*), one on the north-east, and the other on the south-west, each winding through the ramparts and up the steep; this whole path is in the neighbourhood called the fosse-way; it is wide enough to admit one carriage, and in some parts still retains a covering of pitched stones. From the summit of the hill may be seen Kingsweston Hill (*d*), distant more than a furlong, Clifton Down, Knoll, Oldbury, Old Sodbury, Westridge, and Drakestone, which are the sites of seven of the fortresses; the others are Elberton, the Abby (which is a piece of ground conjectured to have formerly belonged to an abbey), Bloody Acre (situated in Lord Ducie's park at Tortworth), Bury Hill (about a mile from Winterbourne), Burril Camp, near Dyrham (where there is a deep and perfect ditch and a steep bank, which cross a point of the hill which is too steep to need any defence), Horton, Uley Bury (which is one of the most remarkable of the whole, and contains thirty-two acres within trenches), Broadridge Green, Painswick Beacon (said to be nearly the highest point of the Cotswold Hills), Church Down, High Brotheridge, a hillock at Witcombe, Crickley Hill, Leckhampton Hill, Clee Hill, and Breedon Hill. (Sever's *Memoirs of Bristol*; Atkyn's *Gloucestershire*; Bigland's *Gloucestershire*; Fosbroke's *Gloucestershire*, *Beauties of England and Wales*: *Archæologia*, *&c.*)

BLAISOIS, LE, the district of which Blois was the chief place. [See Blois.]

BLAKE, ROBERT, was one of the most intrepid and successful admirals that have adorned the British navy. He was born in August, 1598, at Bridgewater in Somersetshire, a sea port town, where his father exercised the business of a merchant. He was educated at the free-school of that place until he was of age to be removed to Oxford, where he became successively a member of Alban Hall and Wadham College. Blake was of a studious turn, yet fond of field-sports and violent exercises; and his first biographer reports a piece of scandal against him, not noticed, we believe, by Clarendon or other contemporaries, that he was given now and then to stealing swans, a species of ga so to call it, then much esteemed, and protected by severe laws. (*Lives, English and Foreign*, 1701.) We may infer that he had a fair share of scholastic learning, from his having stood, though unsuccessfully, both for a studentship at Christchurch and a fellowship at Merton College; not to mention Clarendon's testimony that 'he was enough versed in books for a man who intended not to be in any profession, having sufficient of his own to maintain him in the plenty he affected, and having then no appearance of ambition to be a greater man than he was.' He returned to Bridgewater when he was about twenty-five years old, and lived quietly on his paternal estate till 1640, with the character of a blunt bold man, of ready humour, and fearless in the expression of his opinions, which, both on matters of politics and religion, were opposed to the views of the court. These qualities gained for him the confidence of the Presbyterian party in Bridgewater, which returned him for that borough to the short parliament of April, 1640. The speedy dissolution of that assembly (May 5) gave him little opportunity of trying his powers as a debater: at least we do not find it recorded that he ever spoke. In the long parliament of November, 1640, he did not sit.

On the breaking out of the civil war he entered the parliamentary army, but as to the time or the capacity in which he began to serve we have no certain information. In 1643 he held the command of a fort at Bristol, when that city was besieged by the royalists. Having maintained his post, and killed some of the king's soldiers after the governor had agreed to surrender, Prince Rupert was with difficulty induced to spare his life, which, it was alleged, was forfeited by this violation of the laws of war. He served afterwards in Somersetshire with good repute; and in 1644 was appointed governor of Taunton, a place of great importance, as being the only parliamentary fortress in the west of England. In that capacity he gave eminent proof of skill, courage, and constancy, in maintaining the town during two successive sieges in 1645. It is recorded that he disapproved of the extremities to which matters were pushed against Charles I., and that he was frequently heard to say that he would as freely venture his life to save the king's, as he had ever done to serve the parliament.

In February, 1649, Colonel Blake, in conjunction with two officers of the same rank, Deane and Popham, was appointed to command the fleet: for the military and naval services were not then kept separate and distinct as in later times. For this new office Blake soon showed signal capacity. On the renewal of war after the king's death, he was ordered to the Irish seas in pursuit of Prince Rupert, whom he blockaded in the harbour of Kinsale for several months. At length, being pressed by want of provisions, and threatened from the land, the prince made a desperate effort to break through the parliamentary squadron, and succeeded, but with the loss of three ships. He fled to the river Tagus, pursued by Blake; who, being denied permission by the king of Portugal to attack his enemy, captured and sent home several richly laden Portuguese vessels on their way from Brazil. He finally attacked and destroyed the royalist fleet, with the exception of two ships commanded by the Princes Rupert and Maurice, in the harbour of Malaga, in January, 1651. Both of these actions appear, at first sight, to be breaches of international law. For the latter a valid plea may be found, since it is alleged that Rupert had destroyed British shipping in the same harbour. For the former the best excuse is the unsettled state of relations between the parliament and the court of Portugal; but Blake's creed seems to have been that, in maintaining the supremacy of the British flag everywhere and at all hazards, he could hardly do wrong a doctrine which has always been too palatable to the national vanity of the English. These services were recompensed by the thanks of parliament, together with the office of warden of the Cinque ports; and in March of the same year, Blake, Deane, and Popham were constituted admirals and generals of the fleet for the year ensuing. In that capacity Blake took the Scilly Islands, Guernsey, and Jersey from the royalists, for which he was again thanked by parliament; and in the same year he was elected a member of the council of state.

In March, 1652, Blake was appointed sole admiral for nine months, in expectation of the Dutch war, which did in fact break out in the following May in consequence of Van Tromp, the Dutch admiral, standing over to the English coast, and insulting the English flag. Blake, who was then lying in Rye Bay, immediately sailed to the eastward, and fell in with the Dutch fleet in the straits of Dover. A sharp action ensued, May 19, which was maintained till night, to the advantage of the English, who took one Dutch man of war, and sunk another. The Dutch retreated under cover of the darkness, leaving the honour of victory to the English. The States did not approve, or at least disavowed the conduct of their admiral, for they left no means untried to satisfy the English government; and when they found the demands of the latter so high as to preclude accommodation, they dismissed Van Tromp, and placed De Ruyter and Cornelius De Witt in command of their fleet. Meanwhile Blake took ample revenge for their aggression. He made a number of rich prizes among the Dutch homeward-bound merchantmen, which were pursuing their course without suspicion of danger; and when he had effectually cleared the Channel he sailed to the northward, dispersed the fleet engaged in the herring fishery, and captured a hundred of the herring busses, together with a squadron of twelve ships of war sent out to protect them. On the 12th of August he returned to the Downs, and September 28th the hostile fleets again came to an engagement, in which the Dutch rear-admiral was taken, and three other of their ships were destroyed. Night put an end to the action, and though for two days the English maintained the pursuit, the lightness and uncertainty of the wind prevented them from again closing with the enemy, who escaped into Goree. After this battle, the drafting off detachments on different services reduced the English fleet in the Channel to forty sail. With this force Blake lay in the Downs, when Van Tromp again stood over to the English coast with eighty men-of-war. Blake's spirit was too high for him to decline the battle, even against these odds; an act of imprudence for which he suffered severely. An action was fought off the Goodwin Sands, November 29. Two of his ships were taken, and four destroyed; the rest were so much shattered, that they were glad to run for shelter into the Thames. The Dutch remained masters of the narrow seas; and Van Tromp, in an idle bravado, sailed through the Channel with a broom at his mast-head, to intimate that he had swept it clear of English ships. However, neither the nation nor the admiral were of a temper to submit to this insult, and great diligence having been used in refitting and recruiting the fleet, Blake put to sea again in February, 1653, with eighty ships. On the 18th he fell in with Van Tromp, with nearly equal force, escorting a large convoy of merchantmen up the Channel. A running battle ensued, which was continued during three consecutive days: on the 20th the Dutch ships, which, to suit the nature of their coast, were built with a smaller draught of water than the English, obtained shelter in the shallow waters of Calais. In this long and obstinate fight the English lost one man-of-war, the Dutch eleven men-of-war, and thirty merchantmen; but the number killed is said to have amounted to 1500 on each side, a loss of life of most unusual amount in naval battles. Blake himself was severely wounded in the thigh.

Another great battle took place on the third and fourth of June, between Van Tromp and generals Deane and Monk. On the first day the Dutch had the advantage: on the second Blake arrived with a reinforcement of eighteen sail, which turned the scale in favour of the English. Bad health then obliged him to quit the sea, so that he was not present at the great victory of July 29 (the last which took place during this war), in which Van Tromp was killed; but out of respect for his services, the parliament, in presenting gold chains to the admirals who commanded in that battle, gave one to him also. When Cromwell dissolved the long parliament and assumed the office of Protector, Blake, though in his principles a staunch republican, did not refuse to acknowledge the new government. Probably he expected to find the administration more energetic: and he is reported to have said to his officers, 'It is not our business to mind state affairs, but to keep foreigners from fooling us.' He sat in the first two parliaments summoned by the Protector, who always treated him with great respect. Nor was Cromwell's acknowledged sagacity in the choice of men at fault when he sent Blake at the head of a strong fleet into the Mediterranean in November, 1654, to uphold the honour of the English flag, and to demand reparation for slights and injuries done to the nation during that stormy period of civil war, when internal discord had made others daring against English vessels. Such a mission could not have been placed in better hands. Dutch, French, and Spaniards concurred in rendering unusual honours to his flag. The Duke of Tuscany and the Order of Malta made compensation for injuries done to English commerce; and the piratical states of Algiers and Tripoli were terrified into submission, and promised to abstain from further depredations. The Dey of Tunis alone resisted, but was speedily forced to conclude peace on satisfactory terms. These transactions occurred in the spring of 1655.

On the breaking out of war between Spain and England in 1656, Blake took his station to blockade the Bay of Cadiz. At this time his constitution was greatly impaired, insomuch that in the expectation of speedy death he sent home a request that some person proper to be his successor might be joined in commission with him. General Montague was accordingly sent out with a strong squadron. But in the following spring that officer returned home in charge of some valuable prizes laden with bullion, and Blake was again left alone in the Mediterranean, when he heard that a Spanish plate-fleet had put into the island of Teneriffe. He immediately sailed thither, and arrived in the road of Santa Cruz, April 20th. The bay was strongly fortified, with a formidable castle at the entrance, and a chain of smaller forts at intervals round it. There was also a considerable naval force, strongly posted, the smaller vessels being placed under the guns of the forts, and the galleons strongly moored with their broadsides to the sea; insomuch that the Spanish governor, a man of courage and ability, felt perfectly at ease as to the security of his charge. The master of a Dutch ship which was lying in the harbour was less satisfied, and went to the governor to request leave to quit the harbour, for 'I am sure,' he said, 'that Blake will presently be among you.' The governor made a confident reply, 'Begone if you will, and let Blake come if he dares.' Daring was the last thing wanting; nor did the admiral hesitate, as a wise man might well have done, at the real difficulties of the enterprise in which he was about to engage. The wind blowing into the bay, he sent in Captain Stayner with a squadron to attack the shipping, placed others in such a manner as to take off, and as far as possible to silence the fire of the castle and the forts, and himself following, assisted Stayner in capturing the galleons, which, though inferior in number, were superior in size and force to the English ships. This was completed by two o'clock in the afternoon. Hopeless of being able to carry the prizes out of the bay against an adverse wind and a still active enemy, Blake gave orders to burn them, and it is probable that he himself might have found some difficulty in beating out of the bay under the fire of the castle, which was still lively, when on a sudden the wind, which had blown strong into the bay, veered round to the S.W. (a thing, says the earliest writer of our admiral's life, not known in many years before), and favoured his retiring, as it had favoured his daring approach. Of this, the most remarkable and the last exploit of Blake's life, Clarendon says, 'The whole action was so incredible, that all men who knew the place wondered that any sober man, with what courage soever endowed, would ever have undertaken it, and they could hardly persuade themselves to believe what they had done; while the Spaniards comforted themselves with the belief that they were devils and not men who had destroyed them in such a manner. So much a strong resolution of bold and courageous men can bring to pass, that no resistance or advantage of ground can disappoint them; and it can hardly be imagined how small a loss the English sustained in this unparalleled action, not one ship being left behind, and the killed and wounded not exceeding 200 men; where the slaughter on board the Spanish ships and on shore was incredible.'

For this service the thanks of parliament were voted to the officers and seamen engaged, with a diamond ring to the admiral worth 500*l*. Blake returned to his old station off Cadiz; but the increase of his disorders, which were dropsy and scurvy, made him wish to return to England, a wish however he did not live to accomplish. He died as he was entering Plymouth Sound, August 17, 1657. His body being transported to London, was buried with great pomp in Westminster Abbey, at the public expense. After the Restoration it was disinterred, and, with the bones of others who had taken part with the Commonwealth, was removed to St. Margaret's churchyard.

Blake was of a blunt and singularly fearless temper, straightforward, upright, and honest in an unusual degree. He seems never to have sought his own advancement by any underhand means, and his pecuniary integrity was unimpeached. He left his paternal estate unimpaired, but notwithstanding the great sums which passed through his hands, it is said that he did not leave 500*l*. behind him of his own acquiring. His temper was liberal, and his behaviour to his sailors most kind. Clarendon gives the following account of his character:—'He was a man of private extraction, yet had enough left him by his father to give him a good education; * * * of a melancholic and sullen nature, and spent his time most with good fellows, who liked his moroseness, and a freedom he used in inveighing against the license of the time, and the power of the court. They who knew him inwardly discovered that he had an anti-monarchical spirit, when few men thought the government in any danger.' 'After having done eminent service to the parliament, especially at Taunton, by land, he then betook himself wholly to the sea, and quickly made himself signal there. He was the first man that declined the old track, and made it manifest that the science might be attained in less time than was imagined, and despised those rules which had long been in practice to keep his ship and men out of danger, which had been held in former times a point of great ability and circumspection, as if the principal art requisite in the captain of a ship had been to be sure to come safe home again. He was the first man who brought the ships to contemn castles on shore, which had been thought ever very formidable, and were discovered by him to make a noise only, and to fright those who could be rarely hurt by them. He was the first who infused that proportion of courage into the seamen, by making them see what mighty things they could do if they were resolved, and taught them to fight in fire as well as upon water; and though he has been very well imitated and followed, he was the first that gave the example of that kind of naval courage, and bold and resolute achievements.'

Clarendon's *History*, Heath's *Chronicle of the Civil Wars*, and the *Memoirs of* Whitelock, Ludlow, and other contemporary authorities, will furnish accounts of the numerous battles which we have only mentioned. The earliest memoir which we know to exist of Blake is in *Lives, English and Foreign*, London, 1704. There is also one by Dr. Johnson. The account here given is taken, with some curtailment and a few slight corrections, from that published in the *Gallery of Portraits*, vol. 5.

BLANC, LE, a town in France in the department of Indre, in 46° 39′ N. lat., 1° 3′ E. long. It is on the river Creuse, and on a cross-road which branches off from the high road from Paris to Limoges, towards Poitiers. The river Creuse divides the town into two parts, called the upper and lower town. This river is not navigable, but serves, as the older topographers tell us, to float timber and staves, which are thrown in and re-assembled at a place lower down the stream. There is a castle in the upper town; and previous to the Revolution there were two religious houses in the lower town. At the same period there were three parish churches in the whole town. The population of Le Blanc in 1832 was 3617 for the town, or 4804 for the whole commune. The *Dictionnaire Universel de la France* (1804) assigns to it a manufactory of woollen yarn, and a considerable pottery.

Le Blanc is the capital of an arrondissement, which had in 1832 a population of 56,614. The territory around the town is sterile, and covered with wood; it yields however some wine of a fair quality. A good deal of iron is smelted in this district. The neighbourhood is remarkable for the immense number of pools, the fish from which form an article of trade at Le Blanc. Game and poultry are also abundant.

BLANC, MOUNT, in the system of the Alps, is in the dominions of the king of Sardinia, on the boundary-line between Savoy and Piedmont; it extends from S.W. to N.E. between 45° 46′ and 45° 57′ N. lat. In this direction it may have a length of about thirteen miles; its breadth varies from five to six miles.

This enormous mass of primitive rock rises far above the line of perpetual congelation, and descends with great steepness and to a great depth on the N.W. and S.E.; the valleys, which bound the mountain on these sides, being only between 3000 and 4000 feet above the level of the sea. The valley to the north-west consists properly of two valleys, those of Montjoie and of Chamouny, which are separated by a lateral branch of the mountain for some distance, but afterwards join one another. The valley of Chamouny is the larger, and the place to which travellers commonly resort to have a view of the Mount Blanc, or to ascend it: the village of Chamouny, or the Prieuré, which is nearly in the centre of the valley, is 3403 feet above the level of the sea. The valley to the south-east of the mountain mass, called the Valley of Entreves, consists properly of two valleys, which lie in the same direction, and open one into the other, which takes place nearly at equal distances from the extremities of the mountain-mass. The lowest point of this valley is Cormaggior, situated 3900 feet above the level of the sea.

The southern extremity of the mountain is both united to and separated from the high mountain-range which extends in a southern direction to the very shores of the Mediterranean sea, by the Col de Seigne. This mountain-pass, the highest part of which is below the point of eternal snow, rising only to 8083, unites the Valley of Bonneval in Savoy with the Valley of Entreves in Piedmont, and presents one of the grandest views of the Mount Blanc.

The northern extremity of the mountain is connected with the high range which, running to the east, separates Wallis, or the Valais, from Piedmont; and with another which, extending in a north-western direction, divides Savoy from Wallis, and terminates at no great distance from the Lake of Geneva. From the former range it is separated by the Col de Ferret, or Ferrex, a mountain-pass, 7764 feet above the sea, which connects the valley of Ferret, or Ferrex, with that of Entreves. From the range of mountains extending to the Lake of Geneva, the Mount Blanc is divided by the Col de Balme, which unites the valley of Chamouny with that of Trient in Wallis, and rises to 7552 feet.

The whole mountain mass enclosed between the valleys and these three mountain-passes probably rises to upwards of 10,000 feet, and as in this parallel the snow-line does not extend beyond 9000 or 9300 feet, it probably is about 1000 feet above it. It is consequently all covered with snow, except in a few places where the steepness of the rock does not allow the snow to lie. The upper surface is extremely irregular, and a considerable number of rocks rise from it, which, from their resemblance to pyramids or steeples, are called aiguilles, or needles.

Towards its southern extremity this extensive mass of rocks rises to its greatest elevation in that mountain pinnacle properly called *Mont Blanc*, whose summit attains the height of about 14,748 feet above the sea, in 45° 41′ 52″ N. lat. and 6° 44′ 22″ E. long. When seen from the north or south, it presents the form of a pyramid, descending nearly perpendicularly to the south. When seen from the N.E. or the valley of Chamouny, it resembles the back of a dromedary, and is called by the inhabitants of that valley *Bosse de Dromedaire*.

Near it rises the Aiguille de Goute to the height of 12,204 feet. Farther to the N.E. the Aiguille du Midi attains 12,854 feet, and its neighbour, the Aiguille de Géant, 13,902 feet. Still farther to the N.W. stands the Aiguille d'Argentier, 13,400 feet high, and to the west of it the Aiguille de Dru, 12,460 feet. The most northern and lowest is the Aiguille de Tour, whose summit is only 11,036 feet above the level of the sea. There are still more of these peaks, but they have not been noticed by travellers.

Mount Blanc exhibits all the grandeur of the Alps on a large scale. High tapering pyramids covered with eternal snow; extensive fields of ice, split to a great depth by wide cracks; glaciers of green colour descending from its sides between bare dark-coloured perpendicular rocks, and skirted by forests of fir; and grottoes formed in the masses of eternal ice, in addition to all the other varieties of mountain scenery, attract great numbers of curious and scientific travellers. [See CHAMOUNY.]

The first mention made of Mount Blanc does not go back a century. If we are not mistaken, this mountain was first noticed by our countryman, Richard Pococke, who, in his travels to the East, being struck by its extraordinary height and appearance, described it in his account of the glaciers of Switzerland. Nearly fifty years elapsed after Pococke's description before it was ascended, for the first time, by Dr. Paccard and James Balma, with great difficulty and danger, in August, 1786. A year afterwards Saussure succeeded in reaching the summit, where he remained for five hours, and made a great number of observations. The pulse of the whole company, which was composed of twelve persons, beat with extreme quickness, and all of them felt great thirst and exhaustion, without any desire to take food. The colour of the sky was dark blue; the stars were visible in the shade; the barometer sunk to 16 inch. 1 line, while at Geneva it stood at 27 inch. 1 line; the thermometer indicated in the shade + 26½°, and in the sun + 29°, whilst at Geneva it was + 87° of Fahrenheit. Water consequently froze even when exposed to the sun. Since Saussure's ascent Mount Blanc has been ascended at least twenty times, but no very important observations have been made since that date.

BLANCHARD (aëronaut). [See BALLOON.]

BLANCO, CAPE, on the west coast of Africa (20° 46′ 26″ N. lat., and 17° 4′ 10″ W. long.), is the western extremity of a rocky ridge, which extends eastward into the Sahara to an unknown distance, and is called Jebel el Bied, or the White Mountains, probably from their colour. The cape itself terminates in a rocky but low point, which bends to the southward, and forms with the shore a spacious harbour, called the Great Bay. A few miles farther south is another harbour, the bay of Arguin, which is by many considered as the extreme point to which antient navigation extended.

Cape Blanco is remarkable in more than one respect. The coast to the north of it, as far as Cape Geer, the western extremity of the Atlas Mountains, is rocky, but of very moderate elevation (near Cape Blanco from sixty to eighty feet), except at a few places, as at Cape Laguedo, Cape Bojador, and Cape Noon, but “is very little broken, and contains only a few harbours. This is the more to be regretted, as this coast is one of the most dangerous on the globe, the sea and the winds combining to the destruction of the sailor. Though nearly the whole of this coast lies within the sphere of the trade-winds, they do not extend to the shore itself; but, to a distance of about 150 miles and upwards, a western wind always prevails. This is naturally enough attributed to the sands of the Sahara, which, when heated to a high degree, rarify the superincumbent air, which consequently rises, and the deficiency thus produced is chiefly supplied with fresh air from the sea, by which a continual western wind along the shore is produced. The sea along the whole coast is likewise in continual motion to a distance of 150 or 180 miles, and this current runs likewise east, or very little to the south of east, and points nearly towards the land. In consequence of these combined causes, many vessels are lost on this shore, and the crews fall into the hands of tribes who are among the most cruel and barbarous on the globe.

South of Cape Blanco, or rather of the Bay of Arguin, the shores are low and sandy as far as Cape Verde, and even to the mouth of the Rio Grande. Here the current is more favourable to navigators, as it runs along the shore, or rather in a south-western direction, the north-east trade-wind prevailing at the same time, especially south of Cape Mirik. But here also there are no harbours between the Bay of Arguin and the mouth of the Senegal.

The rocks of which Cape Blanco consists are composed of a mixture of calcareous and siliceous sandstone, in lines of stratification dipping southerly in various inclinations, some as much as 45°. Its summit is partly covered with sandhills, blown from the desert by the winds, and partly with rocky eminences. With the exception of the sandhills which are of recent formation, the whole surface is covered in the most extraordinary manner with shells of all dimensions and species, which are still found in the Great Bay. These shells are in a perfect state of preservation, and have evidently not been used as food.

The Moors who wander about the neighbouring desert seldom visit this place, and only in small numbers at a time; but boats of 100 to 150 tons burden resort to it from the Canary Islands, and carry on a lucrative fishery. Fresh water is found about four or five miles north of the Cape. (Capt. Belcher, in the *Journal of the Geographical Society*, vol. ii.; Rennell's *Investigation of the Currents*; and Jackson's *Account of Marocco and Timbuctoo.*)

BLANDFORD FORUM, also called **BLANDFORD CHIPPING**, or **MARKET BLANDFORD**, a parish and market-town in the hundred of Pimperne, county of Dorset; ninety-two miles S.W. from London, and sixteen N.E. from Dorchester. ‘Nine parcels are mentioned in the Domesday Survey, under the common name of Bleneford, or Blaneford; five of these are small, and were doubtless small manors included in some of the greater. Four Blandfords remained distinguished in after times, namely, Blandford Forum, Blandford St. Mary, Blandford Bryanston, and Long Blandford, now Langton. In the reign of Richard I., the then Earl of Leicester mortgaged it for 452*l.* 6*s.* 8*d.* to Aaron, a Jew of Lincoln, whose estates being seized by the king, this manor, among others, was put into the roll for the king's use. Not long after however, the Earl procured a discharge under the seal of Aaron for 240*l.* 6*s.* 8*d.*, and dying very rich, his estates were divided between his daughters. It passed through several female heirs, who by marriage carried it into various noble families, until it became the property of John of Gaunt, Duke of Lancaster, by marriage with Blanche, daughter of the Earl of Lincoln. When the duke's son became King Henry IV., the estate was united to the crown. Henry V. granted it, with other manors, jointly to Henry Chicheley, Archbishop of Canterbury, and to his uncle, Henry Beaufort, Bishop of Winchester. After this the manor reverted to and remained in the crown until Edward IV. bestowed the whole on his brother, the Duke of Gloucester, afterwards Richard III. From this period the accounts of the descents of the manor are contradictory: part of it appears to have been dependant on the principal manor of Kingston Lacy, and the remainder has either been given to or has been purchased by the corporation. Blandford is called a burgh in old records; but it never sent members to parliament more than twice, namely, in the 33rd of Edward I. and the 22nd of Edward III. The town received its charter of incorporation as a free borough from James I., which conferred on it new liberties, and confirmed those which it had immemorially enjoyed. Under this charter the town has been governed by a bailiff and six capital burgesses.

The town had a market very early: for we find that in 2 Henry III. a precept was directed to the sheriff that the market at this place, which had previously been held on Sunday, should thenceforward be held on Saturday. Since that time Saturday has accordingly been the market-day. A fair also was granted so early as 35 Edward I.: there are now three fairs, chiefly for horses, cattle, and cheese, held on March 7, July 10, and November 8. It is by these markets and fairs, and by the resort of travellers and the neighbouring gentry, together with the races annually held in July or August on a neighbouring down, that the town is chiefly supported. Blandford was in former times noted for its manufacture of band strings, but that article falling into disuse, attention was paid to the manufacture of bone-lace, and until the beginning of the last century the finest point-lace in England was made at Blandford: it was valued at 30*l.* per yard, and was considered to be equal, if not superior, to that of Flanders. After this had also declined, the making of shirt-buttons was the only manufacture which became of much importance in the town; this is principally carried on by women and children, and is still considerable, though not so extensive as in former times. At present Blandford is one of the neatest little towns in the west of England, and it is increasing every year in extent and population; but it is not lighted, nor is there any general watch for the borough and town. In 1831 the parish contained 528 houses, with a population of 3109, of whom 1703 were females. Of this population the town contains 99 parts out of 100.

Blandford is situated in one of the finest tracts of pasture-land in the kingdom. ‘Pasturage only,’ says Mr. Maton, ‘is seen in this part of the county, which, from the multitude of cows fed on it, may truly be called “a land flowing with milk.”’ The town stands on a bend of the Stour, which flows on both the south and west sides of it. The river, which is here of considerable width, is crossed by a bridge of six arches. The town owes its present neat appearance to the fires by which it has been repeatedly devastated. It was burnt in Camden's time, and afterwards rebuilt in a more handsome manner than before; and it was again partially destroyed by fire in 1676 or 1677, and again in 1713. But the greatest calamity of this kind occurred in 1731, when the town was desolated by an almost general conflagration, in which all the public buildings, and all but forty dwelling-houses were consumed. Four hundred families were thus deprived of their homes; and the total amount of the loss is stated by different authorities at from 84,000*l.* to 100,000*l.* The neighbouring towns and parishes promptly assisted the sufferers with provisions and money; and sixty barracks were built of boards and thatched for the temporary accommodation of the poorer sort. Next year an act was passed for the rebuilding of the town, and it was ultimately restored to more than its former neatness. The streets are regular, and well paved, and the houses built uniformly with brick. The town-hall is a neat building of Portland stone, supported on Doric columns, with a regular entablature: within this building there is a pump, a marble panel over which bears an inscription commemorative of the fire. This is dated in 1760, and describes the town as then having risen ‘like a phœnix from its ashes, to its present flourishing and beautiful condition.’ The church, dedicated to St. Peter and St. Paul, was completed in 1739, on the ruins of that destroyed by fire. It is a neat building in the Grecian style, consisting of a chancel, body, two side aisles, and a tower eighty feet high, surmounted by a cupola. The church is built with a greenish-coloured stone, but the windows, door-cases, and ornaments are of Portland stone. It cost 3200*l.* The interior, which is very neat, contains some handsome monuments, and accommodates 1000 persons. The living is a vicarage in the diocese of Bristol, with a net income of 167*l.*

There is a free-school adjoining the church. When or by whom it was founded is not known; but the anonymous author of a description of some places in Dorsetshire in 1579, says there was then here a school of great fame, of which one Millar, a person of great reputation and learning, was master. Archbishop Wake, who was a native of the town, is said to have received the early part of his education in this school. The endowment is very small, the chief part of it being a proportion of a bequest made in 1621 by William Williams, who left 3000*l.* to be laid out in lands, the proceeds to be applied for sundry charitable purposes, among which was 5*l.* per annum to enable the schoolmaster of Blandford to afford instruction to 'four poor men's children apt for learning.' This cannot however be considered a free grammar-school, as the present master pays a rent of 10*l.* a year for the school-house, and is under no obligation to teach gratuitously any of the children of the town. There is another inefficient free-school at Blandford. It was originally founded at Milton Abbas, six miles from Blandford, by the abbot of Milton, in the year 1521; but its efficiency was nullified by an act of parliament which, in 1785, transferred the school to Blandford, in spite of the opposition of the feoffees of the school. No children have been sent to the school for education since its removal.

Archbishop Wake founded a blue-coat school, and endowed it with 1616*l.*, for the instruction and clothing of twelve boys. In 1698 Robert Rideout bequeathed 50*l.* to the parish; and John Bastard, in 1768, gave 600*l.*, a part of the annual produce of both which sums is applicable to the purpose of teaching poor children to read. For a town of its size Blandford has a large amount of charities, consisting in almshouses, and sums left for apprenticing boys, and for supplying the poor with bread, clothing, and alms.

Besides Archbishop Wake, already mentioned, Blandford gave birth to Dr. Lindesay, who was primate of Ireland at the same time that Wake was primate of England. To these we may add Bruno Ryves, D.D., who, during the civil war, started the early newspaper called *Mercurius Rusticus*, and who assisted in the Polyglott Bible; Christopher Pitt, the translator of Virgil; and Thomas Creech, who successively translated Lucretius, Horace, and Theocritus.

(Hutchins's *History of Dorset*, 2nd edit.; Maton's *Observations on the Western Counties*; Carlisle's *Endowed Grammar Schools*; *Municipal Corporations' Reports*, &c.)

BLANE, GILBERT, an eminent physician, was the fourth son of Gilbert Blane of Blanefield, in the county of Ayr, in Scotland, at which place he was born on the 29th of August, 1749. Being intended for the church, he was sent to the university of Edinburgh; but during his attendance there certain conscientious scruples induced him to abandon his original intention, and to devote himself to the study of medicine. In the prosecution of this branch of science he showed such ardour and industry as acquired for him the notice not only of his fellow-students (among whom as a member of the Speculative Society and Royal Medical Society he greatly distinguished himself), but also of Dr. Robertson, the principal of the university, of Dr. Blair, and Dr. Cullen. After obtaining his degree of Doctor of Medicine he was recommended by Dr. Cullen to Dr. William Hunter, at that time the most eminent teacher of anatomy in London, and in high estimation as a physician. Through his instrumentality Dr. Blane was appointed private physician to Lord Holdernesse. This appointment introduced him to the notice of many distinguished individuals, and among others, to Lord Rodney, who nominated him his private physician, in which capacity he accompanied Lord Rodney, when in 1780 he assumed the command of the squadron on the West Indian station. In the course of first engagement every officer being either killed, wounded, or employed, Dr. Blane was intrusted by the admiral with the duty of conveying his orders to the officers at the guns, and in one of these dangerous missions he was slightly wounded. As a reward for his services on this occasion, and on the recommendation of Lord Rodney, he was instituted at once, without going through the subordinate grades, to the high office of physician to the fleet. In the execution of his duties he was unremitting, and exerted himself most beneficially in preserving the health and efficiency, as well as in promoting the comfort of the seamen, on that sickly station. He was present during six engagements under his friend and patron Lord Rodney, and of the battle of the 12th of April, 1782, he gave so animated an account in a letter to Lord Stair, that his narrative was published. He remained on the West Indian station till 1783. Soon after his return to England he embodied the results of his experience, and also many of the conclusions drawn from the returns of the surgeons of the ships, in a volume, which he published in 1783, entitled *Observations on the Diseases of Seamen*, 8vo. London. This work has several times been reprinted, with enlargements and improvements.

As his appointment was of a nature to preclude his being allowed half-pay, a unanimous application was made by all the officers who had been on the West Indian station to the Admiralty to bestow upon Dr. Blane some reward; and accordingly a pension was granted him by the crown, the amount of which was subsequently doubled, on the recommendation of the Lords of the Admiralty.

In the course of his residence in the West Indies he frequently met the present king, William IV., then Duke of Clarence, serving as a midshipman in Lord Rodney's fleet. Dr. Blane obtained the favourable regard of his Royal Highness, and upon determining to settle in London as a physician, he was by the influence of the Duke of Clarence appointed physician extraordinary to the Prince of Wales. In 1785 he was elected physician to St. Thomas's Hospital, in his canvass for which he was greatly assisted by Lord Rodney. About this time he was appointed one of the commissioners of sick and wounded sailors; and in 1795 was placed at the head of the Navy Medical Board. During the time that Earl Spencer was first lord of the admiralty, Dr. Blane, seconded by that nobleman, was enabled to effect the introduction into every ship of the use of lemon-juice, as a preventive and cure for scurvy. This measure has had the beneficial effect of almost completely eradicating scurvy at sea, and has done more to keep up our naval force in a state of efficiency than any other measure. [See ANTISCORBUTICS.] Dr. Blane zealously directed his attention to improve the condition both of the men engaged in the service, and of the medical officers whose duty it was to superintend their health. He caused regular returns or journals of the state of health and disease to be kept by every surgeon in the service, and forwarded periodically to the Navy Board. From a careful examination of these returns, he drew up several dissertations which were read before the Medico-Chirurgical Society, in whose transactions they were subsequently published.

In 1786 he was elected a fellow of the Royal Society, who appointed him to deliver the Croonian Lecture in 1788. He selected for his subject 'Muscular Motion,' his treatment of which evinced the extent and variety of his knowledge as well as the originality of his mind. It was printed in 1791, 4to., and reprinted in his Select Dissertations, London, 1822, of which a second edition appeared in two volumes, 1831. An essay on the 'Nardus,' or spikenard of the ancients, was published in the Transactions of the Royal Society, vol. 80, in the year 1790. During the scarcity in 1799 and 1800, he published an 'Inquiry into the Causes and Remedies of the late and present Scarcity and High Price of Provisions, in a Letter to the Right Hon. Earl Spencer, First Lord of the Admiralty, &c., dated 8th November, 1800; with Observations on the Distresses of Agriculture and Commerce which have prevailed for the last three years, by Sir Gilbert Blane, Bart., F.R.S., Physician to the Prince Regent, 8vo.' This tract was first published in the end of the year 1800, without the author's name; but a second edition, with considerable alterations and additions, was printed exclusively in the 'Pamphleteer' in 1817, vol. ix. No. xvii., of which some impressions were issued separately.

Having attained great eminence as a physician, and his private practice becoming very extensive, he resigned his office of physician to St. Thomas's Hospital. He recorded some of his observations made during the period of twenty years that he held that situation, in a dissertation on the *Comparative Prevalence and Mortality* of different diseases in London, which was published in the Transactions of the Medico Chirurgical Society, and reprinted in his Select Dissertations.

The last public service on which he was employed was on a professional mission to inquire and report on the cause of the sickness of the army in Walcheren in 1809; and to Northfleet, to report on the expediency of establishing a dock-yard and naval arsenal at that place in 1810. His great merit and public services were rewarded by the title of a baronet conferred upon him in 1812; he was also appointed physician in ordinary to the Prince Regent in the same year.

In 1819 he published *Elements of Medical Logic*, which in a few years went through several editions. Of all his writings, this is calculated to be the most permanently and extensively useful, his other productions mostly referring to subjects of temporary interest. His observations on the diseases of seamen however must always be worthy the attentive perusal of all who are designed for that branch of the public service. In 1821 he suffered severely from an attack of *prurigo senilis*, from the harassing irritation of which he could only obtain relief by the use of opium; and as the disease never completely left him, he acquired a habit of consuming a quantity of that potent drug, equal to what any of the opium-eaters of the East can take. In 1826 he was elected a member of the Institute of France. His zeal for the improvement of the naval medical service continued unabated to the last years of his life, and in 1829, with the sanction of the Lords of the Admiralty, he founded a prize-medal for the best journal kept by the surgeons of his Majesty's navy. In 1830, on the accession of King William IV., he was nominated by his former royal shipmate first physician to his Majesty. His last appearance before the public was as the author of a pamphlet, entitled *Warning to the British Public against the alarming approach of the Indian Cholera*, 1831. His later years were spent in retirement from professional labours, and in the revision of his Select Dissertations, the second edition of which he lived to see published. He died on the 26th of June, 1834, in the 85th year of his age. As he was always greatly esteemed and respected by the medical officers of the navy, he was assiduously attended during his last illness by a distinguished surgeon belonging to that branch of the public service, who had served under him, Mr. Copeland Hutchinson, from whose biographical sketch of Sir Gilbert Blane many of the above statements are taken.

The career of Sir Gilbert Blane was long, and marked throughout by zeal for the mitigation of the evils attendant upon war and a sea life, as well as the relief of the sufferings of his fellow-creatures in every condition. Animated by higher motives than that of obtaining the favour of fashionable circles, he neglected the little arts which recommend many to the attention of the great, and may fairly be considered to have gained the station which he obtained by the diligent cultivation and exertion of his solid talents. Few members of his profession, whether exercising it in the public service or in private life, have stronger claims on the lasting gratitude of the country.

BLANK VERSE, verse without rhyme, or the consonance of final syllables. Of this species is all the verse of the antient Greeks and Romans that has come down to us. But during the middle ages, rhyme, however it originated, came to be employed as a common ornament of poetical composition, both in Latin and in the vernacular tongues of most of the modern nations of Europe. In the fifteenth century, when a recurrence to classical models became the fashion, attempts were made in various languages to reject rhyme, as a relic of barbarism. Thus, Homer's 'Odyssey' was translated into Spanish blank verse by Gonsalvo Perez, the secretary of state to the Emperor Charles V., and afterwards to Philip II. Warton, in his 'History of English Poetry,' observes also that Felice Figliucci, in his admirable Italian commentary on the ethics of Aristotle, entitled 'Filosofia Morale sopra i libri dell' Ethica d' Aristotile,' not only declaims against the barbarity of rhyme, and strongly recommends a total rejection of this Gothic ornament to his countrymen, but enforces his precept by his own example, and translates all Aristotle's quotations from Homer and Euripides into verse without rhyme. Figliucci's commentary was published in 1551. Warton afterwards observes -- 'In the year 1528 Trissino published his "Italia Liberata di Goti," or "Italy Delivered from the Goths," an heroic poem professedly written in imitation of the "Iliad," without either rhyme or the usual machineries of the Gothic romance. Trissino's design was to destroy the *terza rima* of Dante. We do not however find, whether it be from the facility with which the Italian tongue falls into rhyme, or that the best and established Italian poets wrote in the stanza, that these efforts to restore blank verse produced any lasting effects in the progress of the Italian poetry.' This statement is allowed to stand uncorrected in the last edition of Warton; but in fact Trissino's poem was not published till it appeared in three volumes, the first printed at Rome in 1547, and the second and third at Venice in 1548. (See De Bure, *Bibliographie Instructive*, iii. 678, 679.) The 'Italia Liberata' is stated by the biographers of Trissino to have been begun in 1525. Another work in blank verse by the same writer, however, his tragedy of 'Sofonisba,' celebrated as the first regular tragedy which appeared in the Italian language, was printed in 1524. (See the catalogue at the end of Riccoboni's *Histoire du Théâtre Italien.*) It was first represented at Rome in 1515. In 1516 the tragedy of 'Rosmunda,' also in blank verse, by Trissino's friend, Rucellai, was recited at Florence in the presence of Pope Leo X., and was printed at Sienna in 1525. In a work entitled an 'Historical Memoir on Italian Tragedy,' by Joseph Cooper Walker (4to. Lond. 1799), there is a short paper on the origin of blank verse in the Italian language (Appendix, No. 3, pp. xx.—xxiii.), in which the author observes that Trissino, though the first Italian writer who used blank verse in long works, and accordingly recognised both by his contemporaries and his countrymen generally as the first who introduced it into their poetry, is not, strictly speaking, to be considered as its inventor. Not to speak of the occasional specimens of blank verse which are to be found interspersed in the works of Boccaccio and his contemporaries, there is a blank verse poem, called the 'Cantico del Sole,' written by St. Francis, the founder of the Franciscans, in the beginning of the thirteenth century. This poem, however, it seems, was thought to be in prose till its metrical character was detected by the critic Crescimbeni in his 'Istoria della Volgar Poesia,' a work published towards the end of the seventeenth century.

In the French language, in like manner, various writers have one after another attempted to write verse without rhyme. Among those who are said to have composed in this fashion are Jodelle and De Baif, who were two of the celebrated Pleiad of poets that adorned the age of Francis I. and Charles IX. (See Pasquier, *Recherches sur la France*, liv. vii. chap. xii.; and Baillet, *Jugemens des Savans*, tom. iv. pp. 91 and 121, edit. of 1725.) Afterwards Nicholas Rapin, who lived in the reign of Henry IV., repeated the same attempt, and, in the opinion of the Cardinal du Perron, with more success than De Baif. (See Baillet, tom. iv. p. 155.) Still more recently French blank verse was written by De la Motte le Vayer, in the age of Louis XIV. None of these attempts however have had the effect of reconciling the French ear to this mode of composition, and it is probable that there is something adverse to it in the genius of the language.

The first English blank verse ever written appears to have been the Translation of the First and Fourth Books of the Æneid, by Lord Surrey, which was printed in 1557 under the title of 'The Fourth Boke of Virgill, intreating of the Loue betwene Æneas and Dido; translated into Englishe, and drawen into straunge metre.' Lond. without date, 4to. 1557, along with the second Book; but which must have been written at least ten years before, for Surrey was executed in 1547. Surrey most probably borrowed the idea of this innovation from the Italians; but Dr. Nott is of opinion that he could not have seen Trissino's poem, already mentioned, as it was not printed till after his death, though written many years before. Ascham, in his 'Schoolmaster,' expressly commemorates this translation of Surrey's as the first attempt to write English verse without rhyme. 'The noble Lord Thomas, Earl of Surrey,' he says, 'first of all Englishmen, in translating the fourth book of Virgil, and Gonzalvo Perez, that excellent learned man, and secretary to King Philip of Spain, in translating the Ulysses of Homer out of Greek into Spanish, have both by good judgment avoided the fault of rhyming.' 'The spying,' he adds, 'of this fault now is not the curiosity of English eyes, but even the good judgment also of the best that write in these days in Italy.' The first who imitated Surrey in the new kind of verse which he had introduced was, according to Warton, Nicholas Grimoald, or Grimalde, some of whose poetical compositions were first printed in the same volume in which Surrey's translation from Virgil appeared. 'To the style of blank verse exhibited by Surrey,' says Warton, 'he added new strength, elegance, and modulation. In the disposition and conduct of his cadences, he often approaches to the legitimate structure of the improved blank verse.' The next thirty years may be said to have naturalized the new mode of versification in the language. The first theatrical piece which appeared in blank verse was Lord Sackville's tragedy of 'Gorboduc,' otherwise called the tragedy of 'Ferrex and Porrex,' which was acted in the hall of the Inner Temple in 1561, though not printed till 1565. Then followed George Gascoigne's tragedy of 'Jocasta,' which was acted at Gray's Inn in 1566. In 1576 the same author published a poem in blank verse, entitled 'Steel Glass.' In 1579 appeared George Peele's blank verse tragedy of 'David and Bethsabe.' In 1588 was published Aske's poem, in the same form of versification, entitled

'Elizabetha Triumphans.' 'A Tale of Two Swans,' a blank verse poem by William Vallans, appeared in 1590; and 'Hieronymo,' another tragedy without rhyme, had also been acted before that year. So that when Shakspeare began to write for the stage, as he is supposed to have done in 1591, he may be said to have found blank verse already familiar to the public ear as the legitimate form of dramatic poetry. (See Warton's *History of English Poetry*, section xl., and the notes to the edition of 1824. See also section x. of the Dissertation by Dr. Nott on 'The State of English Poetry before the Sixteenth Century,' prefixed to his edition of Surrey's Poems, 1815.)

It is curious that Sir Philip Sidney does not mention blank verse in his treatise entitled 'The Defence of Poesy,' which must have been written after several of the pieces we have mentioned above had appeared. Sidney died in 1586, at the age of thirty-two. 'Now of versifying,' he says, 'there are two sorts, the one *antient*, the other *modern*; the *antient* marked the quantity of each syllable, and according to that framed his verse; the *modern* observing only number, with some regard of the accent, the chief life of it standeth in that like sounding of the words which we call rhyme.' 'Truly,' he afterwards adds, 'the English, before any vulgar language I know, is fit for both sorts;' and then he goes on to show its superiority to the Dutch (that is the German), the Spanish, the Italian, and the French, resting his argument entirely, in so far as the three last-mentioned tongues are concerned, on its alleged greater variety of final rhymes. In a preceding part of the treatise he expressly mentions the tragedy of Gorboduc, making it an exception to the rudeness of all the English plays he had seen, as being 'full of stately speeches, and well-sounding phrases, climbing to the height of Seneca his style, and as full of notable morality, which it doth most delightfully teach, and so obtain the very end of poesy.'

Notwithstanding the examples thus set, the employment of blank verse was almost confined to the drama for the greater part of the seventeenth century. Drayton, and Daniel, and Phineas Fletcher, and Davenant, all in that interval wrote long poems, and all in rhyme. Even dramatic composition had, after the Restoration, in the hands of Dryden and others, begun to revert to that form. At length in 1667 appeared the 'Paradise Lost,' and vindicated the capabilities of blank verse by the noblest exemplification of it the language yet possesses. In an advertisement prefixed to the second edition of this poem, printed in 1668, Milton, professing to give 'a reason of that which stumbleth many—why the poem rhymes not,' says, 'The measure is English heroic verse, without rhyme. . . . This neglect of rhyme is so little to be taken for a defect, though it may seem so perhaps to vulgar readers, that it is rather to be esteemed an example set, the first in English, of antient liberty recovered to heroic poem from the troublesome and modern bondage of rhyming.' He allows, however, and indeed urges the fact in vindication of himself, that 'some both Italian and Spanish poets of prime note have rejected rhyme both in longer and shorter works, as have also long since our best English tragedies.'

For the last century and a half blank verse may be said to have been recognised as the only legitimate form for the higher species of dramatic composition in our language. 'Aristotle observes,' says Addison (*Spectator*, No. xxxix.), 'that the Iambic verse in the Greek tongue was the most proper for tragedy, because at the same time that it lifted up the discourse from prose, it was that which approached nearer to it than any other kind of verse. For, says he, we may observe that men in ordinary discourse very often speak Iambics without taking notice of it. We may make the same observation of our English blank verse, which often enters into our common discourse, though we do not attend to it, and is such a due medium between rhyme and prose, that it seems wonderfully adapted to tragedy. I am therefore very much offended when I see a play in rhyme; which is as absurd in English, as a tragedy of hexameters would have been in Greek or Latin.' Many long moral and descriptive poems, as well as shorter pieces of the same class, have also within this period been composed in blank verse; but here it can only be said to hold a divided empire with rhyme. It is to be observed, that unless we are to include a few attempts to imitate the hexameters, pentameters, sapphics, adonics, and other measures of Greek and Roman poetry, the use of blank verse has almost been confined in English to the common heroic line of ten syllables. The attempts that have been made to reject rhyme in our other measures have all been failures, in so far as regards the establishment of the principle, however much the beauty of particular poems composed upon that system, such as Collins's 'Ode to Evening,' may have been admired.

The German probably, of all the languages of modern Europe, admits the greatest variety of blank verse measures. From the practice of modern German poets, it would appear that any species of verse which may be used in that language with rhyme, may also be used without it. In the German translations from Greek and Roman poets we find every species of antient metre successfully imitated, and of course without rhyme. That which approaches nearest to, or rather is identical with, our ten-syllable blank verse, is also much used, as in the following example:—

> Der blinde Greis erhub sich alsobald,
> Wählt' einen Text, erklärt' ihn, wandt' ihn an,
> Ermahnte, warnte, strafte, tröstete
> So herzlich, dass die Thränen mildiglich
> Ihm niederflossen in den grauen Bart. —Kosegarten.

The expression 'blank verse' looks like a French phrase; but we observe that French writers speak of it as one of English invention. (See the article 'Vers Blancs' in the *Encyclopédie*.) Johnson, in his Dictionary, explains 'blank' here as meaning 'where the rhyme is blanched or missed;' and he quotes as his oldest example of the use of the expression the following sentence from Shakspeare:—'The lady shall say her mind freely, or the blank verse shall halt for it.' According to Mr. Park, in a note to Warton's 'History of English Poetry,' vol. iv. p. 241, the poet Daniel, in his 'Apology for Rhyme,' published in 1603, appears to designate what we now call blank verse by the expression *single numbers*. The Italians call blank verse *verso sciolto*, that is, loosened or untrammelled verse.

BLANKENBURG, a principality in the north of Germany, belonging to the dukes of Brunswick, and lying in the region of the Lower Harz; it is bounded on the west by the Hanoverian and Prussian dominions, on the north and south by Prussia, and on the east by Prussia and Anhalt. This principality contains about 144 square miles, or somewhat less than the county of Rutland. In its northern parts it is well cultivated, but the southern district, which lies among the Harz mountains or adjacent to them, is full of forests: it contains, however, valuable iron mines and quarries, particularly of marble, and rears much cattle. It is the personal property of the dukes of Brunswick, into whose possession it came in the year 1590, as a lapsed fief and earldom, and is estimated to produce a yearly revenue of at least 20,000*l*. It was created a principality of the German empire under the name of the principality of Brunswick Blankenburg, in the year 1707. It contains two towns, four market villages, and fifteen other villages, and about 12,000 inhabitants; and is now included in the circle of Blankenburg as part of the Brunswick territory. This circle, which has an area of about 194 square miles, comprehends the three bailiwicks of Blankenburg, Hasselfelde, and Walkenried, in which are three towns, four market villages, and twenty-three villages and hamlets, with a population of about 19,000 souls.

Blankenburg, the chief town, is situated on the Harz, at an elevation of 732 feet above the level of the German Ocean, and is crossed by the rivulet which bears the same name as the town. The principal public buildings are a gymnasium, a female school, school of industry, three churches, a town-hall, an hospital, and a factory for the deposit of the iron, marble, and dye-earths raised in the surrounding districts. Upon the Blankenstein, a rocky height 1038 feet above the level of the sea, and close to the town, is situated the ducal palace of Luisenburg, in which there are 270 apartments, a large collection of paintings, and other objects of note. Immediately below lies the 'Devil's Wall' (*Teufelsmauer*), a long and almost unbroken line of sandstone cliffs, of the wildest and most grotesque forms, on the back of the Heidelberg group of hills; they run from north-west to south east, and spread as far as Ballenstädt in Anhalt-Bernburg. About half a mile from the town also stands the lofty and romantic Regenstein, on the summit of which are the ruins of a spacious castle, entirely hewn out of the rock, besides a number of caverns, and the splendid colossal rock called the 'Rosstrappe.' Blankenburg contains about 400 houses, and 3200 inhabitants; and is between nine and ten miles from Halberstädt, in 51° 47 N. lat., and 10° 57′ E. long. Much mining is carried on in its neighbourhood, particularly at Rübeland on the Bode, where there are iron works, and mills for working porphyry, marble, &c.

BLANTYRE, a parish in the middle ward of Lanarkshire, seven miles east from Glasgow, and bounded on the east by Hamilton, on the west by Cambuslang, and on the south by Glasford and Kilbride. It stretches along the south bank of the Clyde for nearly two miles and a half, and its greatest length from the Haugh opposite Calderbridge to its most southern point is about five miles and a half. The parish is low and sheltered, and hence its name Blantyre, which in Gaelic means 'a warm retreat.' From the church in the middle of the parish to the Clyde, the ground is almost a plain, covered with small inclosures, which are surrounded by belts of planting; and from the Clyde to the southern boundary the soil is, by gradations, sandy clay, loam, moss. Iron-stone is found on the banks of Calderwater, which divides this parish from Kilbride.

On the top of a high rock which rises up from the Clyde, stand amidst trees the picturesque remains of the priory of Blantyre, nearly opposite to Bothwell Castle, which crowns the bold and lofty bank on the other side of the stream. It was of the order of Canon Regulars of St. Augustine, and must have been founded before the year 1296, for at that time 'Frere William, priour de Blantyre, was a subscriber to the Ragman's Roll.' (Prynne, p. 663.) King Alexander II. annexed the parish church and its property to the priory. At the Reformation the priory was demolished; and in 1595 Walter Stewart (afterwards Lord Blantyre), the lord privy seal of Scotland, was made its commendator by King James VI. The patronage and church property of the parish are still in the hands of his descendants.

The village of Blantyre is on the road from Hamilton to Kilbride. The population of the parish in 1831 was 3000, chiefly occupied in weaving and at the cotton mills; 15 persons were then employed in iron-stone mines and 27 in quarries.

The manse was built in 1773; it is not known when the church was erected. The glebe consists of about 12 acres, and the stipend in 1792 was 56 bolls of meal and barley, and 53*l.* 6*s.* 8*d.* in money. At that time there was a stock of about 200*l.*, out of the interest of which, and the weekly collections at the church, the poor were supplied. The parish schoolmaster had then no house or garden attached to his office; his salary was only 6*l.*, and the whole income of the school was worth about 20*l.* per annum.

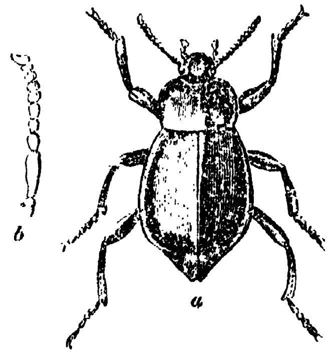
(Sinclair's *Statistical Account of Scotland*, vol. ii.; *Enumeration Abstract of Population Returns*, vol. ii.; Chambers's *Gazetteer of Scotland*; *General View of the Agriculture of the County of Clydesdale*, by John Naismith, Brentford, 1794; *Practical Observations upon divers Titles of the Law of Scotland, commonly called* Hope's *Minor Practicks; to which is subjoined an Account of all the Religious Houses that were in Scotland at the time of the Reformation*, written by Sir Thomas Hope of Craighall, sometime advocate to King Charles I., Edin. 1734.)

BLAPS (*Fabricius*), a genus of insects of the section Heteromera and family Melasoma (*Latreille*): the principal generic characters are,—antennæ with the two basal joints short, their breadth equalling their length, the third joint long, exceeding that of the two following together; the three following joints are longer than broad; the remaining joints nearly round, excepting the terminal one, which is round at the base and acuminated towards its extremity; maxillary palpi with the terminal joint flattened, and when viewed from above or beneath somewhat hatchet-shaped: thorax broad, sides rounded, posterior margin straight: abdomen oblong-ovate, exceeding the thorax in width: elytra generally soldered together, incurved so as to embrace the sides of the abdomen, more or less acuminated towards the apex, and prolonged to a point *at* the apex.

The species of this genus are tolerably abundant, and frequent dark, damp situations, such as the caverns in rocks, &c. In this country there are only two well-authenticated species, *B. obtusa* and *B. mortisaga*, the latter is very common in our kitchens and cellars (in company with the *cockroach*); the former is much less abundant; it is occasionally found with *B. mortisaga*.

Both species are of an obscure black colour, and about three-quarters of an inch in length. As *B. mortisaga* is a well-known common species, we will merely mention the characters distinguishing the rarer one from it. The first striking difference is the superior breadth in *obtusa*; the antennæ are shorter, the fourth, fifth, and sixth joints are scarcely longer than broad (while in *B. mortisaga* their length is nearly double the breadth): the thorax has its hinder angles rounded (in *mortisaga* they are acute): the legs are much shorter in proportion, and the elytra are distinctly punctured.

There are many curious and interesting facts relating to species of this genus, for the most part to be found in Kirby and Spence's *Introduction to British Entomology*, to which we refer our readers.



a, Blaps obtusa, rather above the natural size. *b*, An antenna of the same magnified.

BLASENDORF, or BALASFALVA, a circle in the county of Lower Weissenburg or Alben in Austrian Transsylvania, containing, besides the town of its name, fifteen villages. Balasfalva or Blasendorf, the chief place of the circle, and a large market-town, is the residence of the Græco-Roman Catholic bishop of Foguras, and lies at the confluence of the two Kockels, in 46° 9′ N. lat., and 23° 54′ E. long. It possesses a theological and philosophical seminary for Græco-Catholics, a Roman Catholic school for educating teachers, a Greek monastery of the order of St. Basil, two Græco-Catholic churches, a Protestant church, and a gymnasium. Population about 4200 souls.

BLA'SPHEMY (in Greek *βλασφημία*, *blasphêmia*), a crime marked for public punishment in the laws of most civilized nations, and which has been regarded of such enormity in many nations as to be punished with death. The word is Greek, but it has found its way into the English and several other modern languages, owing, it is supposed, to the want of native terms to express with precision and brevity the idea of which it is the representative. It is, properly speaking, an ecclesiastical term, most of which are Greek, as the term *ecclesiastical* itself, and under this letter, B, the terms *baptism*, *bible*, and *bishop*. This has arisen out of the scriptures of the New Testament having been written in Greek, and those of the Old having in remote times been far better known in the Greek translation than in the original Hebrew.

Blasphemy is a compound word, of which the second part (*phe-m*) signifies to speak: the origin of the first part (*blas*) is not so certain; it is derived from *βλάπτω* (*blapto*), to hurt or strike, according to some. Etymologically therefore it denotes speaking so as to strike or hurt; the using to a person's face reproachful and insulting expressions. (But others derive the first part of the compound from *βλάξ*. See Passow's Schneider.) In this general way it is used by Greek writers, and even in the New Testament; as in 1 Tim. vi. 4, 'Whereof cometh envy, strife, railings, evil surmisings,' where the word rendered 'railings' is in the original 'blasphemies.' In Eph. iv. 31, 'Let all bitterness, and wrath, and anger, and clamour, and evil-speaking be put away from you,' where 'evil-speaking' represents the 'blasphemy' of the original. In a similar passage, Col. iii. 8, the translators have retained the 'blasphemy' of the original, though what is meant is probably no more than ordinary insulting or reproachful speech. Thus also in Mark vii. 22, our Saviour himself, in enumerating various evil dispositions or practices, mentions 'an evil eye, blasphemy, pride, foolishness,' not meaning, as it seems, more than the ordinary case of insulting speech.

Blasphemy in this sense, however it is to be avoided as immoral and mischievous, is not marked as crime; and its suppression is left to the ordinary influences of morals and religion, and not provided for by law. In this sense indeed the word can hardly be said to be naturalized among us, though it may occasionally be found in the poets, and in those prose-writers who exercise an inordinate curiosity in the selection of their terms. But besides being used to denote insulting and opprobrious speech in general, it was used to denote speech of that kind of a peculiar nature, namely when the object against which it was directed was a person esteemed sacred, but especially when against God. The word was used by the LXX to represent the קלל of the original Hebrew, when translating the passage of the Jewish law which we find in Leviticus xxiv. 10-16; this is the first authentic account of the act of blasphemy being noticed as a crime and marked by a legislator for punishment:—'And the son of an Israelitish woman, whose father was an Egyptian, went out among the children of Israel, and this son of the Israelitish woman and a man of Israel strove together in the camp: and the Israelitish woman's son blasphemed the name of the Lord, and cursed. And they brought him unto Moses, and they put him in ward, that the mind of the Lord might be showed them. And the Lord spake unto Moses saying, Bring forth him that hath cursed without the camp, and let all that heard him lay their hands upon his head, and let all the congregation stone him. And thou shalt speak unto the children of Israel saying, Whosoever curseth his God shall bear his sin, and he that blasphemeth the name of the Lord he shall surely be put to death, and all the congregation shall certainly stone him: as well the stranger, as he that is born in the land, when he blasphemeth the name of the Lord, shall be put to death.' It is said that the Hebrew commentators on the law have some difficulty in defining exactly what is to be considered as included within the scope of the term 'blaspheme' in this passage. But it seems from the text to be evidently that loud and vehement reproach, the result of violent and uncontrolled passion, which not unfrequently is vented not only against a fellow mortal who offends, but at the same time against the majesty and sovereignty of God.

Common sense, applying itself to the text which we have quoted, would at once declare that this, and this only, constituted the crime against which, in the Mosaic code the punishment of death was denounced. But among the later Jews, other things were brought within the compass of this law: and it was laid hold of as a means of opposing the influence of the teaching of Jesus Christ, and of giving the form of law to the persecution of himself and his followers. Thus to speak evilly or reproachfully of sacred things or places was construed into blasphemy. The charge against Stephen was that he 'ceased not to speak blasphemous words against this holy place and the law' (Acts vi. 13): and he was punished by stoning, the peculiar mode of putting to death prescribed, as we have seen, by the Jewish law for blasphemy. Our Lord himself was put to death as one convicted of this crime. 'Again the high priest asked and said unto him, Art thou the Christ, the son of the blessed? And Jesus said, I am; and ye shall see the Son of Man sitting on the right hand of power, and coming in the clouds of heaven. Then the high priest rent his clothes and said, What need we any further witnesses? Ye have heard the blasphemy: what think ye? And they all condemned him to be guilty of death.' (Mark xiv. 61-64.) It was manifest that there was here nothing of violence or passion, nothing of any evil intention essential to constitute such a crime, nothing, indeed, but the declaration of that divine mission in which he had come into the world, and of which his miracles had been the indisputable signs.

There are some instances of the use of the term in the New Testament, in which it is not easy to say whether the word is used in its ordinary sense of hurtful, injurious, and insulting speech, or in the restricted, and what may be called the forensic sense. Thus when it is said of Christ or his apostles that they were blasphemed, it is doubtful whether the writers intended to speak of the act as one of more than ordinary reviling, or to charge the parties with being guilty of the offence of speaking insultingly and reproachfully to persons invested with a character of more than ordinary sacredness: and even in the celebrated passage about the blasphemy against the Holy Ghost, it appears most probable from the context that blasphemy is there used in the sense of ordinary reviling, though the object against which it was directed gave to such reviling the character of unusual atrocity.

Among the canonists, the definition of blasphemy is made to include the denying God, or the asserting anything to be God which is not God,—anything, indeed, in the words of the *Summa Angelica*, voce 'Blasfemia,' which implies 'quandam derogationem excellentis bonitatis alicujus et præcipue divinæ;' and this extended application of the term has been received in most Christian countries, and punishments more or less severe have been denounced against the crime.

In our own country, by the common law, open blasphemy was punishable by fine and imprisonment, or other infamous corporal punishment. The kind of blasphemy which was thus cognizable is described by Blackstone to be 'denying the being or providence of God, contumelious reproaches of our Saviour Christ, profane scoffing at the Holy Scripture, or exposing it to contempt and ridicule.' (*Commentaries*, b. iv. c. iv.) All these heads, except the first, seem to spring immediately from the root-sense of the word blasphemy, as they are that hurtful and insulting speech which the word denotes. And we suspect that whenever the common law was called into operation to punish persons guilty of the first of these forms of blasphemy, it was only when the denial was accompanied with opprobrious words or gestures, which seem to be essential to complete the true crime of blasphemy. Errors in opinion, even on points which are of the very essence and being of religion, were referred in England in early times to the ecclesiastics, as falling under the denomination of heretical opinions [see HERESY], to be dealt with by them as other heresies were. There is nothing in the statute book under the word *blasphemy* till we come to the reign of King William III. In that reign an act was passed, the title of which is 'An Act for the more effectual suppressing of blasphemy and profaneness.' We believe that the statute-book of no other nation can show such an extension and comprehension as is given in this statute to the word blasphemy, unless, indeed, two statutes of the Scottish parliament, which were passed not long before. The primitive and real meaning of blasphemy, and we may add of profaneness also, was entirely lost sight of, and the act was directed to the restraint of all free investigation of positions respecting things esteemed sacred. The more proper title would have been, 'An Act to prevent the investigation of the grounds of belief in Divine revelation, and the nature of the things revealed;' for that such is its object is apparent throughout the whole of it: 'Whereas many persons have of late years openly avowed and published many blasphemous and infamous opinions contrary to the doctrines and principles of the Christian religion, greatly tending to the dishonour of Almighty God, and may prove destructive to the peace and welfare of this kingdom wherefore for the more effectual suppressing of the said detestable crimes, be it enacted, that if any person or persons having been educated in, or at any time having made profession of the Christian religion within this realm, shall, by writing, printing, teaching, or advised speaking, deny any one of the persons of the Holy Trinity to be God, or shall assert or maintain that there are more gods than one, or shall deny the Christian religion to be true, or the Holy Scriptures of the Old and New Testament to be of divine authority,' &c. These are the whole of the offences comprised in this act. The penalties are severe: disqualifications; incapacity to act as executor or guardian, or to receive legacies: three years imprisonment. (Stat. 9 Will. III. c. 35.) The writings alluded to in the preamble were not, in any proper sense of the term, blasphemous. They were, for the most part, we believe universally, the work of sober-minded and well-disposed men, who, however erring they might be, were yet in the pursuit of truth, and seeking it in a direction in which it is especially of importance to mankind to find it. To prevent such inquiries by laws such as these is most unwise and injurious. There can be no solid conviction where there can be no inquiry. In a state where laws like this are acted on (happily, in this country, it is become a dead letter), Christianity can never have the seat she ought to have, not only in the affections, but in the rational and sober convictions of mankind. What we mean however at present to urge is, that the title of blasphemy in this statute is a palpable misnomer. The delivery either from the pulpit or the press of the results of reflection and inquiry applied to the divine authority of the Holy Scriptures, or of any particular book included within that term, to the claim of Christianity to be a divine institution, or to the claim of the doctrine of the Trinity to be received as part and parcel of Christianity, can never be regarded as in itself blasphemy or profaneness, however in particular instances it may sometimes be accompanied by expressions which may bring the individual using them within the scope of a charge of blasphemy. It is remarkable that Blackstone, who is not one of an over-liberal school, in his chapter on offences against God and religion, does not treat of this statute in the section headed Blasphemy, but under other heads.

We are surprised that such a statute could have been passed so near our own time; still more that such a title should have been prefixed to it. We have to add, that as to its main provision it remains in force. But in 1813, the number of persons who openly avowed that they did not consider the doctrine of the Trinity as possessed of sufficient support from the words of Scripture, when truly interpreted, to deserve assent, having greatly increased, and large congregations of them being found in most of the principal towns, several clergymen also of undoubted respectability, learning, and piety having seceded from the church on the ground that this doctrine as professed in the church was without sufficient authority, a bill was introduced into parliament to relieve such persons from the operation of this statute, and it passed without opposition. This act, which is commonly called Mr. Smith's Act, after the name of the late Mr. William Smith, then member for the city of Norwich, by whom it was introduced, is stat. 53 George III. c. 160.

The legal crime of blasphemy and profaneness is made by this statute of King William something entirely different from the crime when considered with reference to religion or morals. Few persons will charge any guilt upon a man who, in a course of philosophic investigation, is brought at last to doubt respecting any of the great points of religious belief, after an investigation pursued with diligence, and under a sense of the high importance of the subject. Such a charge would be the result of bigotry alone, and would have no corresponding conviction in the heart of the person thus accused. Yet such a person may be morally guilty of blasphemy. He is morally guilty, if he suffer himself to be led to the use of gross and opprobrious expressions, such as are shocking to the common sense and common feeling of mankind, and abhorrent to the minds of all philosophic inquirers, and all persons who, in the spirit of seriousness, are seeking to know the truth in respect of things which are of the last importance to them. Whoever acknowledges the existence of God, and that there is a stream of providences and dispensations, common and extraordinary, proceeded and proceeding from him, and yet speaks of him, or still more to him, or of and concerning them, in the language of *affront*, or otherwise indeed than with a feeling of reverence correspondent to the dignity and awfulness of the subject, cannot be held morally guiltless: and when there is no such admission, there is at least a decency to be observed in treating or speaking of them, which will be observed by all who have upon their hearts any spirit of seriousness, or any just regard for the peace and welfare of society.

At the same time it must also be admitted that a certain freedom must be allowed in respect of the manner in which questions referring to sacred subjects are treated. All things are not really sacred which many agree to call so. The term sacred may be made to cover any opinion however absurd, and witchcraft and the popular superstitions have sometimes taken shelter under it. It would scarcely be denied that it was lawful to attack opinions of this class, even though the mind of a nation was not sufficiently enlightened to discern the absurdity of them, with any weapons, even those of insult and ridicule; and that though the cry of blasphemy might be raised, yet that at the bar of sound reason such a person, so far from being justly chargeable with so odious a crime, might be one who was rendering to the world the most essential service, by setting the absurdity of the opinion in that clear light in which it admitted of being placed, and thus attracting to it the eyes of all observers. But opinions which have better pretension to be called sacred may not improperly be treated with a certain freedom that to those holding them shall be offensive. Very strong things in this way have been said against the doctrine of transubstantiation by Protestant writers, who have not been regarded by their fellow-Protestants as doing more than setting an erroneous opinion in its true light, though the Roman Catholic has no doubt read the blasphemy, as he would call it, with horror. So the Almighty Father, as he appears in the system of Christian faith which is called Calvinism, has by some been represented in characters which, to the sincere believer in that system, cannot but have been accounted blasphemous; while by those who hold the system to rest on a mistaken interpretation of Scripture it has been held to be no more than the real character in which that system invests him. There is in fact, when the subject is regarded as one of morals rather than of law, a *relative* and a *positive* blasphemy. That is blasphemy to one which is not so to another. And this should teach all persons a forbearance in the application of so odious a term. Strong and forcible expressions have had their use. Satire and ridicule may reach where plain argument would not go: but it behoves every man who ventures on the use of these weapons to consider the intention by which he is influenced, to look upon himself as one who is a debtor in an especial manner to the truth, and who has to satisfy himself that he aims at nothing but the increase of the knowledge and the virtue and happiness of society.

BLAST, BLASTING. [See MINING.]

BLAST-FURNACE. [See IRON.]

BLATTIDÆ, a family of insects of the order *Orthoptera*.—Distinguishing characters: tarsi five-jointed, the under wings folded longitudinally only, head hidden by the thorax; body oval or rounded, and depressed; antennæ long and thread-like, and composed of a great number of very minute joints: palpi long; thorax large, slightly convex, generally broader than long, and as it were a shield, covering the head and base of the wing-cases, which latter are of a parchment-like nature, and ramified with nerves: one elytron laps over the other; the posterior extremity of the abdomen is furnished with two conical articulated appendages; legs furnished with spines.

The Blattidæ are extremely active voracious insects, some species apparently eating almost any thing that comes in their way. Mr. Stephens enumerates seven species indigenous to this country, and four that are not strictly so; among the last mentioned, the well-known and troublesome cockroach (*Blatta orientalis*) may be enumerated. It is said to have come originally from Asia, but on this point there is some little doubt; the nocturnal habits and ravages of this species are too well known to need description. The male in its mature state has wings extending only half the length of the body; the female has only rudimentary wings; her eggs, which are about sixteen in number, are deposited enclosed in an oblong, nearly cylindrical, but slightly compressed case, with an elevated serrated edge on one side: this at first is of a whitish colour, but after a little time becomes brown and of a firm nature; the female carries this case about with her at first, fixed to the abdomen by a gum-like substance; from this asylum the young make their escape by emitting a fluid which softens a part of the case.

The species of this family have been divided into two genera by Latreille; *Blatta* and *Kakerlac* (a name used for the Blattæ by the American colonists), the latter division including those species in which the females are apterous (of which the *B. orientalis* forms a type), and the former those in which both sexes possess wings.

The number of exotic species of this tribe is very great; the indigenous species oft his country are: *B. Germanica*, *pallens*, *perspicillaris*, *Panzeri*, *nigripes*, *livida*, *pallida*, and *Lapponica*; most of these are comparatively small, and are found in woods; the last-mentioned species is said to swarm in the huts of the Laplanders, where it commits great havoc, and, in conjunction with *Silpha Lapponica*, has been known to devour their whole supply of dried fish in a single day. (See Kirby and Spence's *Introduction to British Entomology*, and for a description of the English species, Stephens's *Illustrations of British Entomology*.)

BLAVET, a river in France, rising in the mountains of the antient Bretagne (Brittany) at the part where the two ridges of the Monts d'Arrée and the Montagnes Noires (Black Mountains) unite to form the chain of the Menez Mountains. Its course is south-east to Pontivy, where, having been swelled by several tributary streams, it becomes navigable; and, turning to the south-west, passes Hennebon and Lorient, and falls into the Atlantic at Port Louis, opposite the Ile de Groix. Its course is probably not much above seventy miles, but it is navigable for half its length. Its source is in the department of Côtes du Nord, but the greater part of its course is in the department of Morbihan. There was a small town called Blavet near the mouth of the river, but it went to decay upon the erection of the town of Port Louis close by in the reign of Louis XIII.

BLAYE, a town in France in the department of Gironde, and on the north-east or right bank of the river Gironde. It is probably about 370 miles from Paris, S.W. by S., through Chartres, Tours, Poitiers, Angoulême, and Barbezieux; it is 33 miles N. of Bordeaux. It is in 45° 7′ N. lat., 0° 40′ W. long.

Blaye existed in the time of the Romans. It is mentioned in the Itinerary of Antoninus under the name of Blavium or Blavutum, and in the Theodosian Table, and by Ausonius under the name of Blavia. (D'Anville, *Notice de l'Ancienne Gaule*.) In the middle ages the position of Blaye and its military strength caused it to be the subject of contest between the dukes of Gascogne and Aquitaine, at the time when these duchies existed separately. At a somewhat later period Blaye with its territory was erected into a county, and was held, as a fief under the dukes of Guienne, by a younger branch of the family of the counts of Angoulême. In the religious wars of the sixteenth century, Blaye was taken in 1568 by the Calvinists, who committed great excesses. After this it fell into the hands of the party of the League, and was besieged in vain in 1593 by the army of the king, Henry IV., under the command of Marechal de Matignon.

The town is divided into two parts, the upper and lower town. The upper town is built upon a rock: it is fortified with four large bastions and other works of defence, and is surrounded by a wide and deep ditch: this upper town is sometimes called the citadel of Blaye. In it is an antient castle. The lower town, which seems to have been originally a suburb of the upper town (from which it is separated by a small river, into which the tide flows), is the residence of the merchants, who have their store-houses there. The port is frequented by foreign ships, and by smaller vessels from Bretagne (Brittany), which come here to take in a cargo of the wines of the district. By an old ordinance of Louis XI., which long continued in force, vessels coming to Bordeaux were obliged to land their cannons at Blaye. The exports are chiefly wine, brandy, oil, soap, resin, fruit, and timber. A considerable quantity of corn is also shipped here, brought from the neighbouring departments, or the produce of some very fertile marshes near the town, which were drained in the early part of the last century. Vessels coming from Bordeaux take in provisions at Blaye.

There were at Blaye, before the Revolution, two abbeys, one of Benedictines, and one of the order of St. Augustin; but the societies were extinct, and the revenues held 'in commendam' (*en commende*). In the church of the abbey of the Augustinians was the tomb of King Caribert, whom writers state to have died in the year 570; but whose death (if he be, as is likely, Caribert, king of Aquitaine, brother of Dagobert I., see *Biographie Universelle*) should rather be placed in 631.

The river Gironde at Blaye is very wide. Piganiol de la Force (*Nouvelle Description de la France*) states that it is 1900 toises (equal to two miles and a quarter) across. Other authorities make the width as much as two leagues, or nearly six miles, but this is an exaggeration. The passage was not, therefore, thought to be sufficiently protected by the guns of the fortress of Blaye and those of the Fort Medoc on the opposite bank. In consequence a fort of four bastions and other batteries, the works of which were formed of earth and of turf, was, in 1689, erected on a small islet in the mid-channel. In the centre of this fort of earth a handsome tower of masonry was constructed. This fort is called Paté de Blaye, and is considered to render impracticable any attempt upon Bordeaux by the river.

Blaye has an agricultural society and a theatre. Its population in 1832 was 3322 for the town, or 3855 for the whole commune. Many pilots reside here, who conduct vessels into and out of the Gironde, the navigation of which is much disturbed by shifting sands. It is the capital of an arrondissement comprehending 732 square miles, or 468,480 acres, and having in 1832 a population of 56,406. This arrondissement is subdivided into four cantons, and thirty-seven communes or parishes.

BLAZONRY, the art of delineating figures and devices in their proper colours or metals, on armorial shields: also used to express the hatching of the same, according to their different colours, by the engravers. Du Cange says the etymology of this word is uncertain. (*Glossar.* edit. Paris, 1733, tom. i. p. 1202.) Richelet says that some have derived it from the German *blasen*, 'to praise,' a sense however in which this word does not appear to occur; others from the same word signifying *to sound a horn*, because the heralds at tournaments sounded a horn when they proclaimed the arrival of a combatant. (*Dictionnaire de la Langue Françoise*, fol. Lyons, 1759, p. 311.) Junius gives the English *to blaze abroad* as its origin.

Allowing the mere invention to the Germans, says Dallaway, the splendid aid that heraldry receives from the art of blazonry is unquestionably the property of the French alone. Theirs are the arrangement and combination of tinctures and metals, the variety of figures effected by the geometrical positions of lines, the attitudes of animals, and the grotesque and almost inexplicable delineations of monsters. Dallaway, as well as other writers, consider that the tournaments held with such magnificence towards the end of the tenth century, under the auspices of Hugh Capet, were introductory of the more general usage and assumption of arms. (Compare Dallaway's *Inquiries into the Origin and Progress of the Science of Heraldry in England*, pp. 8, 9; Gough's *Sepulchr. Monuments of Great Britain*, vol. i. p. cxxx.; Edmondson's *Heraldry*, pref.)

BLEACHING, the process by which certain animal and vegetable products, and especially such as are used as articles of clothing, are rendered white. The principal substances of the animal kingdom which are subjected to the operation of bleaching are wool and silk; those of vegetable origin are chiefly cotton and flax. These bodies contain a quantity of colouring matter, which though natural to them is not an essential constituent: it appears also that the colouring matter is more readily acted upon by chemical agents, and suffers decomposition with greater facility, than the animal and vegetable matters with which it is mixed. On these accounts it is removed by operations producing little or no injurious effect upon the texture or durability of the articles from which it is separated: and thus not only is their beauty increased, but they are fitted for the reception of the colours of the dyer and the ornamental designs of the calico-printer.

The process of bleaching is one of unquestionable antiquity, and more especially in Egypt, where white linen was used as clothing. Of the Egyptian processes nothing is known with certainty: they were probably tedious and imperfect: consisting perhaps of little more than exposure to air, light, and moisture. (See Plin. xix. 1. on flax.)

Until within a century the art of bleaching was scarcely known in Great Britain, and it was usual to send the brown linen manufactured in Scotland to Holland to be bleached. The Dutch method consisted in steeping the linen for several days in a solution of potash, which was poured upon it boiling hot; the cloth was then removed, washed, and afterwards put into wooden vessels containing butter-milk, for nearly a week. This operation being over, the cloth was spread upon grass, and exposed to light, air, and moisture for some months; the cloth sent from Scotland to Holland was generally kept there for half a year. One of the earliest improvements made in this tedious process after bleaching was performed in this country, was proposed by Dr. Home of Edinburgh, who introduced the use of water acidulated with sulphuric acid, instead of the sour milk previously employed: by this substitution a great saving, especially of time, was effected, for the sulphuric acid was as effectual in one day's application, as the sour milk in six or eight weeks.

Until the year 1787 little further alteration was made in the process of bleaching. But a most important improvement was effected in it in consequence of the discovery by Scheele, a celebrated Swedish chemist, of what he termed dephlogisticated marine acid, about the year 1774: this substance was afterwards called oxymuriatic acid, but is now known by the name of chlorine gas. The property which this gas and its solution in water possess of destroying vegetable colours, suggested to Berthollet the idea that it might be advantageously employed in bleaching, and might essentially shorten the process. In the year 1785 he read a paper before the Academy of Sciences at Paris, which was published in the 'Journal de Physique' of the same year. In this paper he mentions that he had tried this gas in bleaching cloths, and with a perfectly successful result: in the following year he published another paper on the subject, and showed the experiment to Mr. Watt, who first introduced this method of bleaching practically into England. About the same time Mr. Thomas

Henry of Manchester was actively engaged on the same subject. Indeed, these gentlemen appear to have unreservedly described to each other the progress of their experiments, and to them belongs the chief merit of introducing the new mode into the neighbourhood of Glasgow, and into Lancashire. By the application of this method, as much bleaching is as well performed in a few hours, and in a space of a hundred yards square, as on the old process would have occupied weeks of exposure upon a hundred acres of land.

Chlorine was first used in the state of simple solution in water; afterwards, in order to lessen its destructive action when used in too concentrated a state, it was proposed to add potash to it. This compound however was not found to answer the purpose; but in the year 1798, Mr. Tennant of Glasgow took out a patent for a liquid compound of chlorine and lime; the patent however was set aside. The following year he took out another for impregnating dry hydrate of lime with chlorine gas; this invention was not contested, and the chloride of lime, generally known by the name of bleaching-powder, is now almost universally employed, especially in the bleaching of cotton: it is a compound which answers the purpose with economy, celerity, and safety. [See CALCIUM and its compounds.]

The colouring matter of cotton, flax, and hemp, is insoluble in water, and appears to be of a resinous nature: it is partially dissolved by heated solutions of lime and potash, or soda; and by their use, and the application of a solution of bleaching-powder and dilute sulphuric acid, the colouring matter which is not dissolved is destroyed. Cotton is more readily bleached than flax or hemp, and these more readily than wool: indeed this last-mentioned substance, as well as silk, is generally bleached by the fumes of burning sulphur, or sulphurous acid gas, after they have been properly cleansed. Straw and feathers are also bleached by sulphurous acid gas. Wax is generally deprived of its colour by mere exposure to air, light, and moisture.

With respect to the theory of bleaching it may be observed, that the action of lime and the alkalis, potash and soda, appears to be that of mere solvents: they probably dissolve the colouring matter without effecting much alteration in its properties. The actions of atmospheric air and chlorine seem to be similar to each other, and very different from that of lime and the alkalis: the oxygen of the air aided by the action of light and moisture apparently combines with and destroys the colouring matter: and the chlorine decomposing water, one portion of it forms muriatic acid with its hydrogen, and another portion with its oxygen probably gives rise to a compound of easy decomposition, the nascent oxygen of which acting like that of the air, though more powerfully, produces the same oxidizing effect upon the colouring matter, but more perfectly, and in a much shorter period.

That water is necessary to the action of chlorine upon vegetable colouring matter is shown by immersing dry colouring matter in the dry gas, in which case no decoloration whatever is effected, but it ensues immediately on the introduction of water. The bleaching of rags for paper-making is effected by the agency of chlorine. Paper also, when written on or printed, may be bleached by the same means.

There are some operations in which the removal of colour is hardly referrible to the process of bleaching: such for example is the decoloration of sugar, which derives its colour, not from any natural cause, but the partial decomposition effected by heat. This is removed by what is usually termed animal-charcoal or ivory-black: this powerful decolorant is also used in some chemical operations for the same purpose. [See CHARCOAL, ANIMAL; and SUGAR.]

BLEAK. [See LEUCISCUS.]

BLECHINGLEY, a parish and town (formerly a market-town and borough) in the hundred of Tanridge, in the county of Surrey, twenty miles S. of London. The parish comprehends 5250 acres. Horne was formerly comprised in it, but was made a distinct parish in the reign of Queen Anne. The soil in the upper part of the parish, in which the town is situated, consists of chalk, stone, gravel, and sand; the lower district is of clay. The town itself stands near the foot of the chalk-hills which run through the county. At the time of the Domesday Survey, the manor (called there Blachingelei) was in the possession of Richard de Tonbridge, earl of Clare. It seems, from the way in which the matter is there stated, that this earl united into one manor what had formerly been three. The whole had been worth 13*l.* per annum in the time of the Confessor, afterwards 8*l.*, and to Richard was then worth 12*l.*, besides that 'his men' held to the value of 73*s.* 4*d.* It is probable that these 'men,' whose names are given, (Odin, Lemei, and Peter,) had privileges above the rest of the inhabitants, and that from among their descendants the burgesses were chosen to serve for this place in parliament when the Commons came to be summoned. This event took place in the 23rd of Edward III., since which date the town uninterruptedly sent members to the House of Commons, until the Reform Bill came into operation, when the borough was disfranchised. The bailiff of the manor was returning-officer, until it was determined by a resolution of the House of Commons in the reign of James I., that the bailiff had no concern in the election. After that the place continued to present the singularity of an election without a returning-officer, or rather without any person having an exclusive right to the office. When provisions, &c. were taken for the king's house, this town and Horne were bound to furnish wood and coals, being on the borders of the woody country; but for many years previously to 1616 they had been excused from this obligation, through the interest of the Earl of Nottingham, lord of the manor. They had been so long excused that, when called upon, the inhabitants were unwilling to execute the service: the matter was compromised by the Board of Green Cloth giving up the arrears, which were 100 loads of wood, and 30 loads of coal, on their undertaking to perform the service in future. A weekly market was formerly held here, but has long been discontinued. Two annual fairs are still held, on June 22nd and November 2nd; to the latter (which, as well as the elective franchise, was granted by Edward I.) great numbers of horses, hogs, and lean cattle are brought from Scotland and Wales. The number of houses amounted to 208 in 1831, when the population was 1203, of whom 547 were females. The inhabitants are chiefly employed in agriculture.

A castle formerly existed at the western extremity of the town, on the brow of a hill. A piece of wall was still standing in Aubrey's time (1673); but only the foundations can now be discovered. It is not well known when or by whom it was built; probably by Richard de Tonbridge: but it is certain that it belonged to his descendant, Gilbert de Clare, earl of Gloucester. This noble joined the disaffected barons in the reign of Henry III., and commanded a division of their forces at the battle of Lewes, in 1264. The king's forces destroyed his castle at Blechingley, in revenge of the active part he had taken in this contest. The antient manor-house, called 'Blechingley Place,' stood in Brewer-street. Here resided Edward, duke of Buckingham, who was beheaded by Henry VIII. Some of his conversations here with his chancellor and Sir George Nevil were given in evidence on his trial. It has long been pulled down, with the exception of the porter's lodge, which has been turned into a farm-house.

The church, dedicated to St. Mary, is a large and handsome old building, in the early English style of architecture. It consists of a nave, with a south aisle and a double chancel, and a north transept called Ham Chapel. The nave is divided from the chancel by a pointed arch, and from the south aisle by clustered pillars supporting four pointed arches: the two chancels are separated by two similar arches. The south chancel is entirely occupied by a magnificent monument of the first Sir Robert Clayton and his lady, with their whole-length figures in white marble. Having been lord mayor of London, he is represented in the insignia of that office. He was father of the city at his death, and had been for thirty years one of its representatives in parliament. He raised himself from a very low condition of life, and died in 1707. Dryden has made him figure rather unenviably in his Absalom and Achitophel; but the justice of the satire is in this instance disputed. The low square embattled tower contains eight bells, and was formerly surmounted by a lofty spire, which rose seventy feet above the battlements; it was supposed to contain 200 loads of oak timber, and was covered with shingles. It was burnt down in 1606, and never since rebuilt. The church affords accommodation for 600 persons. The living is a rectory in the diocese of Winchester, with a net income of 881*l.* Near the church there is a charity-school, founded in 1633 by Thomas Evans, for the instruction of twenty poor boys of the town. The founder endowed it with thirty acres of land in the adjoining parish of Nutfield, and a house and garden for the master were afterwards bequeathed by Mr. Bostock of Tanridge. The property produces something more than 20*l.* a year, which continues to be appropriated according to the directions of the founder. There are eleven almshouses at Blechingley, and some small charitable donations for the benefit of the poor. (Aubrey's *Natural History and Antiquities of Surrey;* Salmon's *Antiquities of Surrey;* Manning's *History and Antiq. of Surrey, &c.*)

BLE'DIUS, a genus of insects of the order *Coleoptera* and family *Stenidæ.*—Generic characters: antennæ with the basal joint very long, the remaining joints bent at an angle with the first; maxillary palpi with the second and third joints large, terminal one slender: mandibles armed with a tooth internally towards the apex; body elongate and cylindrical; head furnished with two tubercles or spines: thorax armed with a horn in the males: legs short, the four anterior tibiæ broad and flat, having numerous spines on the external part; tarsi four-jointed.

The Bledii appear to be peculiar to the sea-coast, where they burrow in the wet clay or sand near pools of water, by means of the spined anterior tibiæ above described; they are gregarious in their habits. Three species have been discovered in this country, all of which are of a black colour, with the wing-cases more or less red.

Bledius tricornis, in the male sex, has two short horns on the head, and one long smooth horn proceeding horizontally from the front of the thorax. Length about 3-12ths of an inch.

B. Taurus, in the male, has two long and slender horns on the head: the thoracic horn is pubescent at the apex; about the same size as the last.

B. Ruddii has short acute horns on the head, and the thoracic horn pubescent at the apex; it is rather less than the two foregoing.

BLEEDING, the operation by which blood is removed from the body, with a view to the prevention and cure of disease. Bleeding is either general or local. General bleeding is practised when the object is to lessen the whole mass of the circulating blood: local, when the object is to lessen the quantity in some particular part of the body. General bleeding consists either in opening a vein (venesection), or in opening an artery (arteriotomy). Venesection, the most common mode of abstracting blood, is a simple operation, and in skilful hands neat, elegant, and safe; but in unskilful hands dirty, bungling, and exceedingly unsafe: it is always performed with a lancet. Various means employed for the removal of blood from particular parts of the body; such as cupping glasses, the scarificator, the division of visibly distended vessels with a lancet, and leeches. The mode of performing the operation of venesection and arteriotomy is fully detailed in the com- books on surgery, where the requisite precautions are pointed out. It is only necessary to add here, in reference to local bleeding, and more especially to the application of leeches, that when there is a difficulty in making leeches fix readily on any particular part, they may often be made to do so at once, by first cooling the part with a cloth dipped in cold water, or by moistening it with cream or milk, and then confining the leeches in the proper situation under a small glass. It should be borne in mind, that these animals are cold-blooded, that heat is highly injurious to them, and that handling them with the warm hand, or keeping them long out of water in a heated room, totally unfits them for the performance of their office. Great fatigue to the patient, great aggravation of his disease, and even the loss of life itself, sometimes result from the ignorant and unskilful manner in which attempts are made to apply leeches. In the diseases of infants and children especially, in which general bleeding can rarely be employed, the preservation of life constantly depends on the efficient application of leeches.

It is scarcely one time in a hundred that the physician finds a single person in a family who has the slightest notion of the proper mode of performing this service to the sick. It would be wonderful indeed were it otherwise, when the education of women, in reference to the entire class of subjects the knowledge of which is necessary to qualify them for the performance of their duties as nurses and as mothers, is universally and wholly neglected.

The conditions of the system which require the abstraction of blood, and the benefit which the removal of it is capable of effecting, will be better understood after reading the account of the blood. [See BLOOD.]

BLEIBERG, or **BLEYBERG**, on the Drave, a market-town of Upper Carinthia, at present comprehended in the circle of Villach, in the Austrian kingdom of Illyria, and at the foot of the Bleyberg, or Lead Mountain, to the south-west of the town of Villach. It is the seat of one of the Austrian mining departments, and its neighbourhood contains valuable quarries of white and variegated marbles, copper, and lead; indeed the lead here raised is esteemed the purest in the Austrian dominions, and is in high repute in the east of Germany, Italy, and the adjacent countries. There are six principal and forty minor shafts in full work, which produce annually between 1700 and 2000 tons of metal. These, together with the copper mines and the production of about eighty tons of red lead, employ eight works in breaking the ores, &c., nineteen in washing, and twenty-one in smelting. The town of Bleiberg being composed of five villages, spreads over a considerable surface: it contains one Catholic church, a Protestant place of worship, about 600 houses, and about 3700 inhabitants.

BLE'MUS, a genus of insects of the order *Coleoptera* and family *Harpalidæ.* Generic characters: head almost as large as the thorax, the portion joining the anterior part of the eyes distinctly elevated: antennæ very long; palpi with the terminal joint somewhat conical and rather acute: labium slightly notched in front; thorax considerably narrowed posteriorly; body elongate and rather depressed, wings ample; the joints of the anterior tarsi of the male dilated.

About six British species of this genus have been discovered, the largest of which does not exceed 3-12ths of an inch. All the species are of a pale-yellow or ochre colour, having more or less of a bluish shade on the disc of the elytra, excepting *B. consputus*, which, although generally placed in this genus we do not consider as strictly belonging to it. *Blemus fasciatus*, which may be considered the type of the genus, is rather more than 2-12ths of an inch in length, and of a pale-ochre colour, with a blue-black fascia crossing the elytra. This beautiful little species has been found near London, and in various other parts; but, like all the species of this genus, is rather scarce.

BLENDE, a name particularly given to zinc-blende, but most commonly used by mineralogists as denoting an order which in the system of Professor Jameson of Edinburgh contains the following genera:—Manganese blende, Zinc-blende or Garnet-blende, Antimony-blende, Ruby-blende. The word is probably derived from a German verb (used only in combinations) signifying to mix: the term 'blende' signifies a mineral which contains no ore - in fact a pseudo-galena.

BLENHEIM, or **BLENDHEIM**, a village on the Danube, not far from the town of Hochstädt, in the circle of the Upper Danube in Bavaria. The population of this place and its environs is about 1500 souls. It was the scene of Marlborough's great victory on the 13th of August, 1704, when, at the head of the British troops, aided by Prince Eugene and the Imperialists, he totally defeated the French and Bavarian forces under Marshal Tallard. The marshal himself and 12,000 of his troops were taken prisoners; and his artillery and baggage fell into the hands of the conquerors. At Blenheim in Bavaria also the Austrians were defeated by the French in the year 1800.

BLENHEIM PARK, the name of an extra-parochial district in the county of Oxford, seven miles N.W. from that city, and sixty miles W.N.W. from London, containing seventeen houses in 1831, with a population of eighty-three persons. The district inclosed by walls comprehends about 2700 acres, and is said to be upwards of twelve miles in circuit. It is a demesne-appendage to Blenheim House, which was erected at the public expense for the duke of Marlborough in the reign of Queen Anne, when parliament voted 500,000*l.* for the purpose, in testimony of the public gratitude for the services which he had rendered to the nation. The queen enhanced the value of this gift by adding the grant of the honour of Woodstock, an antient property of the crown. Although apparently intended as a general acknowledgment of the duke's services, the victory over the French and Bavarians near the village of Blenheim, on the Danube, on the 2nd of August, 1704, is that to which the grants had more especial reference, and from which the place takes its name. It was enacted that on every anniversary of the victory at Blenheim 'the inheritors of the duke's honours and titles should render at Windsor to her Majesty, her heirs and successors, one standard or colours, with three fleurs-de-lis painted thereon, in acquittance for all manner of rents, suits, and services due to the crown.' Notwithstanding the liberality of parliament, the money voted was inadequate to complete this noble structure, and large additional sums were expended by the family for the purpose. The architect was Sir John Vanburgh. Every person has not been able to study the works of this distinguished man, but every one remembers the satirical epitaph,

> 'Lie heavy on him earth, for he
> Laid many a heavy load on thee;'

and hence most unscientific visiters came to examine the mansion at Blenheim with a predisposition to assign it a ponderosity and massiveness ill suited to a domestic structure. It is certainly not a *light* building; 'but,' says Mr. Brewer, 'the palace appears to be august rather than ponderous, and it would perhaps be difficult to show how so extensive a pile could be less weighty without losing essential dignity.' Dr. Mavor, in his detailed description of Blenheim, had many years before expressed a similar opinion:—'He (Vanburgh) deserves very considerable applause for his judgment in a circumstance which has principally exposed him to the censure of pretended critics; he has rendered this structure characteristic and expressive of its destination. Its massy grandeur, its spacious portals, and its lofty towers, recall the ideas of defence and security; with these we naturally associate the hero for whom it was erected, and thus find it emblematic of his talents and pursuits.' It was a remark of Sir Joshua Reynolds that no architect understood the picturesque of building so well as Vanburgh; and in the opinion of Mr. Brewer, Blenheim House might be adduced in proof of the accuracy of this observation. This writer, speaking with a particular reference to the grand northern front of the edifice, characterizes the whole display as august and impressive. 'The eye,' he says, 'without taking leisure to examine the various features which conduce to the result, is at once struck by a combination productive of unspeakable grandeur.' He allows however that on a more minute examination, sharp-sighted and captious observers will not be without grounds for objection. 'Such will point to elevations which hesitate between cupolas and towers, and properly are neither. They will direct the eye to the central compartment and observe, that, if measured with the lateral portions of the edifice, it will be found to want height though by no means deficient in *weight*. These objections may hold good when the critic examines Blenheim as an architectural *drawing*, but when it is viewed as a *building*, we discover so much sublimity of effect, that little disposition remains to analyze the sources whence gratification is derived.' This result is no doubt owing to what the same writer calls 'the consummate skill in the perspective of architecture possessed by the designer.'

The spot on which the mansion stands is remarkably well chosen, being sufficiently elevated to display the structure to great advantage, without detracting from its comparative magnitude. The local guides and minute descriptions expatiate upon the alternate grandeur and beauty of the approaches, and the admirable arrangement of the spacious grounds in which the castle stands. Omitting this, we observe that the usual entrance to the grounds from Woodstock is through a triumphal arch or gateway, with two posterns. This was erected by Sarah, duchess of Marlborough, in memory of her husband. It is of the Corinthian order, with both fronts alike, and contains a Latin inscription on the side next Woodstock, and a translation on the other side. At some distance in front of the palace a fine piece of water, partly river, partly lake, which winds through a deep valley, is crossed by a very stately bridge of stone, the effect of which is particularly good, as it unites two hills and gives consistency and uniformity to the scene. The centre arch of this bridge is 101 feet in span. Beyond this bridge, on a considerable eminence in the middle of a fine lawn, is placed a fluted Corinthian pillar, 130 feet high, which is surmounted by a statue, in a Roman dress and triumphal attitude, of the conqueror whose glory all things here were designed to commemorate. The side of the pedestal next the house is covered with a long inscription, describing the duke's public services. It is believed to have been written by Lord Bolingbroke. The other three sides of the pedestal are inscribed with acts of parliament declarative of the sense which the public entertained of Marlborough's merits, together with an abstract of the entail of his estates and honours on the descendants of his daughters.

In the general view the buildings of Blenheim House occupy three sides of a parallelogram, open to the north, to expose the north front of the main or state building, while the east and west sides form wings, also with courts, which contain domestic offices, stables, and a chapel, and from which there are colonnades leading to the principal floor of the house itself. The principal or northern front of this has already been generally characterized in stating the impression which the view of it conveys. It is a noble piece of architecture, in a mixed, original style, extending 348 feet from wing to wing, and highly enriched, particularly in the centre. Mr. Carter, who was certainly not disposed to render praise where praise was not due, concurs fully in the approbation with which our preceding authorities have spoken of this magnificent specimen of Sir John Vanburgh's talents. We take, with some verbal alteration, part of his description of this front, as given in No. CCVII. of a series of papers contributed by him, in a long series of years, to the 'Gentleman's Magazine:'—'In the centre of the five divisions of the house is the hall; a flight of steps with pedestals conduct to the portico with Corinthian columns and pilasters; double height of doors and windows, a pediment enclosing armorial bearings; above this an attic story, having breaks, windows, and pediment, the last surmounted by tiers of balls with foliage, &c. The second divisions, left and right, are run out in line by Corinthian pilasters, circular-headed windows, &c. in two stories, surmounted by entablature and balustrade: the sweeping augmentations are in two stories, the first with Doric columns, circular and square-headed windows, with entablature and balustrade above. The third divisions, right and left, advance considerably by means of the sweeping augmentations: they are in two stories, with the ground rusticated, circular-headed windows, and an entablature, the frieze having a series of scrolls. Here the chimneys, as attics, are most imposingly introduced in one great pedestal with open arches, pilasters, parapet, and ball-ornamented finishings. The windows to the ground-story are circular. The general terrace, with its several flights of steps, sided by pedestals and vases, afford a fine introduction to the elevations. On the introductory colonnade from the wings to the house are vases and military trophies; there are trophies also on the pedestals of the portico, statues on the entablature of the first story of the sweeping augmentations, as also on the second pediment and balustrade of the centre division.'

The south or garden front of the building has a less florid character than that we have noticed in detail. It has five divisions corresponding with those of the grand front, but the breaks do not advance much beyond the general line. In the centre, a flight of steps here also conducts to a portico with Corinthian columns and pilasters, but without a pediment. It was originally intended that the entablature should sustain an equestrian statue of Marlborough, but instead of this it bears, with appropriate military emblems, a colossal bust of Louis XIV., taken from the gates of Tournay.

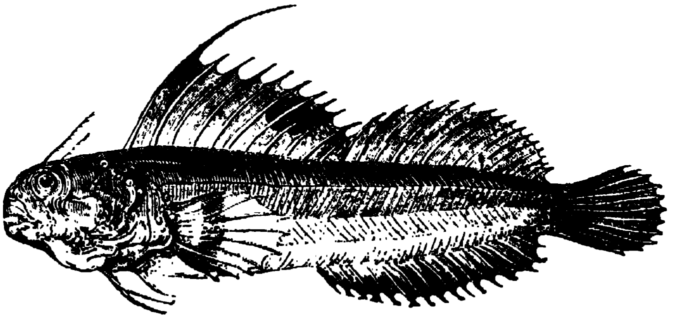
We must refer to architectural works for descriptions of the other elevations, and to the local 'Guides' for accounts of the magnificent interior, with its painted ceilings by Thornhill, La Guerre, and Hakewill; its sculptures, its tapestry, and its splendid collection of pictures, containing specimens of the works of almost every eminent master of every school.

(Brewer's *Oxfordshire* in *Beauties of England and Wales*; Mavor's *Blenheim Guide*; Carter's *Architectural Innovation* in *Gentleman's Magazine*, vol. lxxxvi.)

BLE'NNIUS (*Blennies*; French, *Baveuses*), a genus of fishes of the section Acanthopterygii and family Gobioidæ (*Gobies*): both the Greek and the French names have been applied to this genus, from the mucous matter with which the bodies of these fishes are covered. They may be easily distinguished by their having the ventral fin placed before the pectoral, and containing generally but two rays. The head is short and rounded; teeth long and slender, and placed in a single row; body long, compressed, smooth, and possessing only one dorsal fin, which extends nearly the whole length of the back: they have no air-bladder.

The species of this genus are small, live in shoals, but not in great numbers: they are very active and tenacious of life, and frequent rocky coasts, where they may often be found in the pools of water left by the tide, hiding themselves among the weeds and in the crevices of the rocks.

The genus *Blennius* of Linnæus, in Cuvier's *Règne Animal*, is divided into the following subgenera: *Myxodes*, *Salarias*, *Clinus*, *Cirrhibarba*, *Murænoides*, *Opistognathus*, and *Zoarcus;* which will be noticed under the proper heads. At present we confine ourselves to the Blennies, properly so called, of which, according to Mr. Yarrell, we have five species frequenting our coasts. The first, *B. Montagui* (Montagu's *Blenny*), is generally of an olive-green above, spotted with pale-blue shaded to white; belly white, pectoral fins spotted with orange. The head, viewed laterally, forms an obtuse angle in front, and is furnished with a transverse conic or angular fimbriated crest. The dorsal fin has thirty rays, pectoral twelve, ventral two, anal (which extends from the vent to the tail) eighteen, and the caudal (which is rounded) fourteen. It is found on the south coast of Devon.



[Blennius ocellaris.]

B. ocellaris (the ocellated Blenny, or Butterfly-fish) is scarcely three inches long, the head is rounded, the part anterior to the eyes very short, and above the eyes two slender fimbriated appendages are situated; body elongate, dorsal fin extending from the back part of the head to the tail, and consists of twenty-six rays, of which the first is considerably longer than the rest, the nine following diminish in length to the eleventh, which is shortest, the twelfth nearly double the length of the last, from this the remaining rays gradually increase in length to about half-way, and then decrease towards the tail; a large dark-brown spot extends from the sixth to the ninth ray. The pectoral fins have each twelve rays, ventral two, anal seventeen, and caudal eleven. The body is of a pale-brown colour, varied with patches of a deeper hue; the pectoral and ventral fins are darker than the others. This species frequents the coast of Devonshire and elsewhere, but is not common.

B. gattorugine (the gattoruginous Blenny) is about five or six inches in length; it is elongate, rather robust anteriorly, the forehead slopes considerably from the posterior part to the anterior; the head is grooved between the eyes, and furnished with two branched membranes situated just above the eyelids, the dorsal fin extends from the back part of the head to the tail, the central part is very slightly narrower than the rest. The fins and body are of a dark reddish-brown colour, the belly and hinder portion of the former is of a paler brown. The dorsal fin has thirty-three rays, the pectoral fins are broad and rounded, and have each fourteen, the ventral fin two, and the anal twenty-three; the tail is slightly rounded, and has eleven rays. It has been found in Poole Harbour and other parts: not common.

B. pholis (the Shanny). In this species all the rays of the dorsal fin are nearly of equal length, except the eleventh and twelfth (which are short); the number of these rays is thirty-one, pectoral thirteen, ventral two, anal nineteen, caudal eleven; the colour is very variable, but consists of shades of brown. *B. pholis* may however be readily distinguished from any of the known British species by the absence of the appendages on the head.

B. palmicornis (the crested Blenny). This species may be known by its elongated even shape, the uniform length of the rays of the dorsal fin, the form of the tail (which has the external rays shortest, the others increasing in length to the middle, thus being somewhat lanceolate in shape), and the four appendages of the head which are all fimbricated; two of these appendages are placed one over each eye, and connected by a transverse fold of skin; behind these are placed the other pair, which are of a larger size; the fin rays are, dorsal fifty-one, pectoral fourteen, ventral three, anal thirty-six, and caudal sixteen.

This species appears to be very rare on our coasts. (See Yarrell's *History of British Fishes.*)

BLE'PHARIS, in Entomology, a subgenus allied to *Mantis*, belonging to the order *Orthoptera.*

BLE'PHARIS, a genus of *Acanthopterygious* fishes, which according to Cuvier belongs to the seventh family of that tribe, called *Scomberoides.* They may be distinguished by their having long filaments to their second dorsal, and to their anal fin rays, ventrals much prolonged, the spines of the first hardly piercing the skin; body elevated, the profile with the ordinary degree of curvature.

BLE'PSIAS, a genus of *Acanthopterygious* fishes, belonging to the section having hard cheeks. Of this genus but one species (*Villosus*) is known, which belongs to the Aleutian Islands. Generic characters: head compressed, cheeks mailed, fleshy barbels under the lower jaw, gills with five rays; one dorsal fin divided into three unequal lobes; ventral fin very small.

BLE'SOIS, LE, the district of which Blois was the capital. [See Blois.]

BLETHI'SA (Bonelli), a genus of *Coleopterous* insects, by some authors associated with the family *Harpalidæ*, and by others with the *Elaphridæ.* It is our opinion that the former classification is more correct, and that the latter family is not a natural one. Generic characters: head large, eyes slightly prominent, mandibles obscurely toothed; palpi with the two terminal joints of equal length, the terminal rather ovate, truncated at the apex; mentum emarginate anteriorly, the emargination with an obscure bifid lobe; antennæ short, the three basal and base of the fourth joints naked; thorax rather short, rounded at the sides; elytra elongated, very convex and impressed with numerous small excavations; anterior tarsi of the male with four slightly dilated joints.

Of this beautiful genus but one species has been found in this country, *Blethisa multipunctata;* and apparently only two others are yet known on the continent. The species just named frequents marshy situations, and is often found crawling upon willow-trees; it is about half an inch long, and of a rich bronze or brassy hue, by which characters, combined with the numerous indented points on the elytra, it may easily be distinguished.

BLIGH, WILLIAM, the commander of the ship Bounty at the time when she was piratically seized in the South Seas.

The description given by Captain Cook of the bread-fruit and edible fruits of various descriptions in the South Sea Islands induced a number of the West India merchants to take measures for introducing them into the West India colonies. On the advantages likely to result from such a design being strongly represented to George III., orders were given to prepare a vessel for the purpose. The arrangements were superintended by Sir Joseph Banks, who christened the vessel 'the Bounty.' Bligh, then a lieutenant, who had already sailed with Cook in those quarters, was appointed to the command, and sailed from Spithead for Otaheite on the 23rd December, 1787. On the 26th of October following they reached their destination, and remained at the island until April 4th, 1789, the crew enjoying the most unreserved intercourse with the natives during the whole of this long period.

Lieutenant Bligh, in his journal dated March 31st, says, 'To-day all the plants were on board, being in 774 pots, 39 tubs, and 24 boxes. The number of bread-fruit plants was 1015, besides which we had collected a number of other plants;—the *avee*, which is one of the finest-flavoured fruits in the world; the *ayyah*, which is a fruit not so rich, but of a fine flavour and very refreshing; the *rattah*, not much unlike a chestnut, which grows on a large tree in great quantities; they are singly in large pods, from one to two inches broad, and may be eaten raw or boiled in the same manner as Windsor beans, and so dressed are equally good; the *orai-ab*, which is a very superior kind of plantain.' The whole were under the care of competent persons chosen by Sir Joseph Banks. Laden with these valuable plants the vessel proceeded on her voyage to Jamaica. On the morning of the 28th of April the captain was seized in his cabin, while asleep, by Mr. Christian, who was the officer of the watch, and three other individuals; his hands were tied behind him, and he was threatened with instant death if he gave the least alarm. The mutineers then brought him on deck in his shirt, and gave orders for the boat to be lowered. Those persons also who were supposed to be well affected to Bligh, or on whom they could not reckon, were summoned to leave the ship. They were allowed to collect twine, canvass, lines, sails, cordage, a twenty-eight gallon cask of water, and one of them got 150 lbs. of bread with a small quantity of rum and wine, and also a quadrant and a compass, but no map, ephemeris, or sextant. It was Christian's intention to turn them adrift in a crazy boat of very small dimensions, but he was prevailed upon to let them have the launch instead, which, though affording better accommodation, was not at all adapted for navigating the open sea, especially as their own weight, together with their slender stock of necessaries, brought the gunwale almost to the water's edge. Lieutenant Bligh was put into the boat last, after he had fruitlessly endeavoured to restore the mutineers to a sense of their duty. He states in his journal that, 'After having undergone a great deal of ridicule, and been kept for some time to make sport for these unfeeling wretches, we were cast adrift in the open sea.' The most able of the ship's company, to the number of twenty-five, were in possession of the Bounty; the remainder, nineteen, including Bligh, were left to struggle with cold and hunger in an open boat deeply laden and some thousands of miles from any hospitable shore. They were near the island of Tofoa at the time of leaving the ship, in 19° S. lat., 184' E. long.; and they landed, in order, if possible, to increase their stock of provisions, but a sudden attack by the natives compelled them to embark without obtaining more than a trifling quantity of bread-fruit, plantains, and cocoa-nuts. Their whole stock of provisions for nineteen persons consisted of 150 lbs. of bread, 32 lbs. of pork, six quarts of rum, six bottles of wine, and 28 gallons of water. They caught on their voyage a few sea-birds, and spent a few days among the coral islands off the coast of New Holland, which enabled them to get a comparatively comfortable meal or two of oysters, clams, and dog fish, and relieved them from the fatigue of being constantly in the same position in the boat, and enabled them to enjoy good rest at night. Their hungry condition and the selfishness which misery engendered may be understood, when one of the crew confessed afterwards that during one of their excursions he had separated from his companions, and having caught nine boobies, he devoured the whole of them himself in a raw state. On the 14th of June they arrived at Timor. They had reached this island in forty-one days after leaving Tofoa, having in that time run by the log a distance of 3618 nautical miles with scarcely anything to support life, without shelter from the weather, and without the loss of a single man. To the prudence, firmness, and seamanlike qualities of Bligh their safety may be chiefly ascribed. After remaining a couple of months at Coupang, the capital of Timor, they obtained a schooner, in which they reached Batavia Road on the 1st of October. Lieutenant Bligh proceeded as soon as possible to England, where he landed March 14th, 1790. Twelve only of the companions of his perilous voyage to Timor succeeded in getting to their native country; five died; and one, who was left behind, was never heard of afterwards.

The relation of the treatment which Lieutenant Bligh had experienced, and of the hardships which he had encountered, highly excited the public sympathy. He was again sent out to the South Seas, and was completely successful in conveying to the West Indies a supply of the bread-fruit plant. He was also promoted to the rank of commander, and the Pandora frigate, Captain Edwards, was sent out to Otaheite, for the purpose of apprehending the mutineers. The Pandora reached this island March 23rd, 1791, where fourteen of the mutineers were found, who were apprehended and kept on board in irons. As to the Bounty, it appeared that she had in the first instance been taken to the island of Toobouai, where the mutineers determined upon forming a settlement; but quarrels among themselves and disputes with the natives determined them upon leaving the island, and proceeding to Otaheite, which they reached on the 6th of June. Here they did not remain long, but having taken on board 312 hogs, 38 goats, 96 fowls, a pig, and a cow, a large quantity of bananas, and received an addition of eight men, nine women, and seven boys, they sailed on the 19th of June, and arrived for the second time at Toobouai, June 26th. Here they recommenced their labours to effect a settlement; but the quarrels among themselves soon became more inveterate than before, and many of the natives who had attempted to resist their wanton aggressions were shot. All spirit of co-operation was entirely gone, and it was at last determined once more to return to Otaheite, where those who were disposed might remain, and the rest be at liberty to proceed elsewhere with the Bounty. They accordingly left Toobouai for the last time on the 15th of September, and arrived at Otaheite on the 20th of September (1789). Here sixteen of the party resolved upon leaving the ship, and the remainder of the mutineers, nine in number, sailed on the night of September 21st, in search of another asylum. There were also on board seven Otaheitan men and twelve women. Out of the sixteen who were left at Otaheite, one had been shot by another of the party, and the natives had stoned the murderer to death. The Pandora therefore only took home for trial fourteen individuals. On the 8th of May, 1791, the Pandora left Otaheite, and, after an ineffectual search of several months, with a view to discover the place of Christian's retreat and the fate of the Bounty, she was wrecked on the 29th August on the coral rocks near New Holland, when four of the mutineers and thirty-one of the ship's company lost their lives. The survivors, consisting of eighty-one of the crew and officers of the Pandora, and ten of the mutineers of the Bounty, proceeded in four open boats to Timor, which they reached in sixteen days. Captain Edwards, of the Pandora, finally reached Spithead with his prisoners on the 19th of June, 1792.

On the 12th of September following a court-martial was assembled at Portsmouth, under the presidency of Lord Hood, for the trial of the ten surviving mutineers, and on the 18th they delivered their verdict. Four of them were acquitted, and six were found guilty and sentenced to death, of whom two were recommended to mercy. On the 24th of October the king's warrant was received at Portsmouth, ordering the execution of three out of the four men who were condemned without recommendation, and granting a respite to the fourth; the other two received a full pardon, one of whom, a young midshipman named Heywood, afterwards honourably distinguished himself in the service. The man who was respited subsequently received his majesty's pardon.

It was much disputed at the time whether the mutiny of the Bounty was occasioned by the harsh conduct of Bligh, or whether the mutineers were seduced from their duty by the prospects of a life of ease and pleasure in the delightful islands of the South Seas. During their stay at Otaheite they had been exposed to temptations which must have had some influence on their future conduct. Experience too had taught them, that solitary desertions would subject them to certain punishment, as the chiefs had been compelled to give up all runaways. The only mode of effecting their purpose (if their object was to settle in some of the islands) evidently was to make themselves masters of the ship. On the other hand, it is certain that Bligh's conduct was often coarse and arbitrary, and that both officers and men felt indignant at his treatment of them. His character also appears in an extremely unamiable light, in a letter which he wrote to the afflicted mother of Heywood. Bligh's reply to her inquiries consisted of some six or eight lines only, in which he adds to a mother's distraction by representing her son's 'baseness as beyond all description.' To the youth's uncle he expressed himself in a letter as follows:—'I very much regret that so much baseness formed the character of a young man I had a real regard for, and it will give me much pleasure to hear that his friends can bear the loss of him without much concern.' This was before the court-martial was held. Heywood was not in the secret of the mutineers, and his error consisted in not endeavouring to leave the ship along with his commanding officer. There is the best reason for believing that the mutiny was not the result of a maturely-formed conspiracy, but that 'the plot was conceived and carried into execution between the hours of four and eight A.M. of the 29th of April.' (*Marshall's Naval Biography*, art. *Heywood.*) The two or three preceding days Bligh, in the united capacities of commander and purser, had acted in a manner more than usually

In 1806 Bligh was appointed governor of New South Wales, where his acts appear to have been extremely tyrannical, and his use of the powers vested in him most impolitic and even illegal. (See Wentworth's *Statistical, Historical, and Political Description of New South Wales*, p. 200.) His conduct became at length so unbearable, that on the 26th January, 1808, he was arrested by order of the other civil and military officers of the colony, and his government was thus summarily terminated. The excesses with which he is charged by Wentworth are of the most shameful and atrocious character, and ought to be taken into account in forming our estimate of his conduct on board the Bounty. (See Wentworth's second edition, p. 203, and the note.) Bligh died in December, 1817.

Nothing was heard of the Bounty until 1809, when an American vessel touched at the island which Christian had selected as a retreat. For an account of this interesting settlement see PITCAIRN'S ISLAND.

The mutiny of the Bounty has partly been made the subject of one of Lord Byron's poems, entitled the 'Island,' which contains many passages of great beauty.

See *Narrative of the Mutiny on board H. M. S. Bounty*, written by Lieutenant W. Bligh; *Minutes of the Proceedings on the Court-Martial, with an Appendix*, by Edward Christian, brother of Fletcher Christian. To this publication Lieutenant Bligh replied with great calmness, in a pamphlet entitled *An Answer to certain Assertions, &c.* He rested his defence 'on the testimony of others,' and on the written orders issued during the voyage. 'These testimonials, I trust, will be sufficient to do away any evil impression which the public may have imbibed.' He has not accompanied them by any remarks, 'lest,' he adds, 'I might have been led beyond my purpose, which I have wished to limit solely to defence.' The account of his voyage to the South Seas was published in 4to., pp. 264, London, 1792, and contains charts, engravings, and a portrait of Bligh. A popular account, entitled 'The Eventful History of the Mutiny and Piratical Seizure of H. M. S. Bounty: its Cause and Consequences,' forms one of the volumes of the 'Family Library.' Murray, 1831.

BLIGHT, a popular name for any kind of pestilence which affects cultivated plants by curling up or destroying their leaves and blossoms, or by giving them a yellow sickly appearance, or by covering certain parts of them with unnatural colours. To a term thus loosely applied no precise meaning can be assigned: for the effects to which it relates are produced by causes of totally different kinds. The attacks of insects, especially of the aphis, produce a curling in leaves, and a stoppage of growth; those of the eriosoma, tubercles upon the branches, and loose cottony tufts; caterpillars spread their nets from branch to branch, destroying all they meet with; cold dry winds in the spring, or sharp night frosts at the same period, cause an appearance of scorching; and finally the ravages of numerous parasitical fungi, some of which are superficial and others intestinal, are the origin of much that is popularly called blight. The attacks of insects form a subject which it is the business of the entomologist to explain. Blight from the attacks of parasitical fungi will be explained under the head of MILDEW; that which is produced by meteorological influences may find a brief notice in this place.

Nothing can be more absurd than the explanations of this malady as given by many writers on gardening, nor anything more simple than it is in reality. One person talks gravely of its being caused by certain transparent flying vapours, which may sometimes take such a form as to converge the sun's rays like a burning-glass. The fact appears to be this: when a plant first produces its young branches and leaves, all the new-born parts are tender and succulent, and part with their fluid matter with rapidity until the solidification of the recently-created tissue has taken place. To enable this function to be performed regularly and without interruption, it is necessary, 1. that the air should be in a certain state of humidity, or the perspiring parts will lose their aqueous particles too fast: and, 2. that the temperature should not be low enough to destroy the tissue by rupturing its sides, or by any other cause. Suppose these conditions to be maintained without interruption, leaves and branches gradually become fully formed, and no blight appears; but if, as frequently happens in this country, the air is rendered extremely dry by the prevalence of easterly winds, the young parts perspire with such rapidity that the loss thus occasioned cannot be made good by the roots, and the consequence is that the tissue becomes dried up and scorched as it were, or at all events is brought into a more or less diseased condition. Such is blight properly so called, if that lered applicable to any particular form (be obvious that the only remedy for this, rred, will be the restoration of the atmosphere to the necessary state of humidity, or to a sufficiently equable temperature. For this, artificial means can only be employed upon a limited scale, and perhaps the only practice which is ever attended with much advantage is frequently washing the blighted plants with a syringe. It has by some been recommended that wet litter should be burned to the windward of large tracts covered with blighted plants, and it has been supposed that the smoke thus produced will remedy it by destroying insects, its imaginary cause; but if any effect is ever obtained from such a practice, it is not by the destruction of insects, but by the interposition of a canopy of smoke at night between the plants and the sky, by which radiation is stopped, and the severity of the cold diminished.

Blight is often used to designate the mischief done by those insects which are destructive to vegetation; and consequently many insects of various genera and even orders must be included under this common denomination. It is not our intention however to describe the habits of all these various species, as they will be found under their respective heads: at present, we shall confine ourselves to the history of one species only, which has been carefully observed by Mr. Lewis, and which will be found in detail, in the first number of the Entomological Society's Transactions. As this history is a satisfactory explanation of the sudden appearance of certain insects infesting the apple, hawthorn, and other trees, it is hoped that the vulgar idea of blight breeding in the air, and coming with the wind, will, in a great measure, be refuted.

If the branches of the apple or hawthorn (particularly the *young* branches) be carefully examined during the winter months, certain little round and slightly convex patches will be found. These patches are rather less than the sixth of an inch in diameter, and generally attached to the underside of the branches: each of these little patches is the work of a small white or lead-coloured moth, studded all over with black spots (*Yponomeuta padella*, the small ermine), and consists of a number of eggs (deposited in the month of June) covered with a glutinous substance, which is at first of a pale yellow colour, but by being exposed to the weather soon becomes dark, and thus closely resembles the branch. The eggs hatch early in the Autumn, and the larvæ remain confined within this covering during the winter, at which time, if the case be opened, about a dozen or more of these little larvæ, which are of a yellow colour, may be distinctly seen by means of a lens of very moderate power. As soon as the trees begin to put forth their leaves, the larvæ make their escape from the covering, and as they are yet very feeble, and cannot eat the epidermis of the leaves, and require protection from the weather, they mine into the leaves, where they subsist upon the parenchyma only. When their little frames are grown stronger, so that they are able to bear the inclemencies of the weather, perhaps also some particular state of the atmosphere being favourable, 'they make their way out, and the anxious gardener, who has hitherto only observed the brownness of the leaves, caused by the mining, but which is by him attributed to the withering blast of an easterly wind, is astounded when he perceives myriads of caterpillars swarming on the trees, and proceeding with alarming rapidity in their devastating course. The fact of their mining sufficiently explains the reason of this sudden appearance: it shows how one day not a single caterpillar may be visible on the trees, and the next, they may be swarming with larvæ of so large a size as to rebut the idea of their having been recently hatched.' The webs we so often see covering the branches of apple-trees, and the hawthorn of the hedges, are the work of the little caterpillar above mentioned; which after a time becomes of a lead-colour spotted with black, and when full grown spins an oblong white cocoon, within which it turns to the pupa, and shortly after the moth hatches: this takes place generally in the month of June.

The aphides, or plant lice, are likewise great pests to the gardener (see APHIS). It may be observed, however, that as each infested plant has its peculiar aphis and as the aphides are quite as numerous (if not more so) when the plants are covered with a glass as when they are exposed, it is absurd to imagine that blight is bred in the air (the vulgar notion), and brought to these plants by the wind. Certain winds may be more favourable than others for hatching the young, which h
deposited on the plants by the pare

BLIND, INSTRUCTION OI
haps meets with more general sympathy than any

calamity. Our most beautiful and correct perceptions are derived through the medium of sight; the want therefore of such a medium is an evil for which no other possession can compensate. Hence it is that we at first consider the blind as an unfortunate race, whose conceptions must not only be confined to that narrow sphere in which they live and move, but, as far as a knowledge of external objects is concerned, must be limited to that imperfect acquaintance which is obtained by the sense of feeling. Looking however further into the subject, we find that the sense of hearing is constantly communicating knowledge to a blind person which helps him to analyse and compare; from which he draws inferences, and arrives at conclusions more or less correct; that constant experience enables him to modify any false impressions which he may have received; that association, memory, and other powers of the mind are active; that the senses of smell and taste are continually contributing some small additions to his stores of knowledge, and that, by these united means, he may become well-informed on subjects of ordinary discourse, though labouring under a disadvantage at first appearance insurmountable. The self education of a child born blind commences as soon after its birth as that of one who sees; and if parents in such cases would give themselves trouble in its instruction, instead of looking upon their case as one of despair, they would be amply rewarded by the improvement, surpassing all expectation, which their child would make. They would find little difficulty in communicating to him the names, shapes, and many other particulars of objects; and indeed language, with the exception of some classes of words denoting colour, or other qualities, which can only be known by means of sight, might be as perfectly conveyed to him as to the child possessing all its senses. They would find that they could give correct ideas of numbers to a large amount by means of tangible objects, and of still larger numbers by analogy; that they could also give ideas of time, space, distance; so as to impress him with correct notions of the earth, its size, inhabitants, productions, climates; the occupations, the pleasures, and the pains of mankind. All this is knowledge of a useful and pleasing kind, and many parents would become highly interested in such a work: they would soon find that they might proceed still farther, and enable their blind child either to attain a certain degree of perfection in some mechanical art, or, by educating his higher faculties, train him to occupy a more intellectual and important station.

The parent who reasons and acts thus upon his child's calamity will be supported and animated by the knowledge that he is supplying by his own attention the defect of nature, and that he is educating his child to fulfil important duties with the same pleasure to himself that others have who possess a more perfect organization, and that he is providing a most efficient check to listlessness and mental torpor.

The ear has been happily called 'the vestibule of the soul,' and the annals of the blind who have become illustrious confirm the remark, for they show that few intellectual studies are inaccessible to them. It has even been said, and has received a kind of universal assent among those who have associated much with them, that in certain branches of study they have a facility which others rarely possess. The blind appear to have immense advantages over the deaf: their intercourse with the outward world, by means of speech, is more direct, and consequently more rapid, and their knowledge of passing events is equal to that of mankind generally. The deaf and dumb *see* indeed all that passes within their immediate sphere, but owing to the circuitous mode of communication which they have to adopt, they can know little beyond it, and enter very partially into the spirit of passing events. In addition to this, finding that they do not always understand perfectly, nor guess rightly, their temper becomes impatient, and their countenance acquires an anxious or irritable expression, which is sometimes mistaken for cleverness. We know of no deaf persons who have attained to any great degree of eminence, even under circumstances favourable to the development of their powers; but with regard to the blind, they have enriched the arts, the sciences, and literature by their successful pursuits, and not unfrequently under circumstances of extraordinary difficulty. Viewing both these classes of men as devoid of education, dependent upon themselves for support, and for the enjoyment of life, the blind are *physically* greater objects of compassion than the deaf, because, without peculiar modes of education suited to their privation, they cannot obtain a livelihood; but so far as happiness is dependent upon knowledge, and from this source some of the purest enjoyments arise, they are nearly on a level with ordinary men. Through the ear they can acquire knowledge of the highest order, and cannot remain long in any company of their fellow-men without becoming in some degree wiser. The case of the deaf is the reverse of this: they are not *physically* so dependent as the blind: having the advantage of sight, they may apply themselves to and acquire the simpler imitative arts, and thus earn a subsistence, but *mentally* they are little above brutes; they can know nothing of the things around them, they feel themselves depressed and degraded among men; the language, the customs, the enjoyments of society, where these rise higher than what seems to exist among the more perfect animals, are to them unknown, and by them unregarded; and it requires only a small amount of reflection to perceive that an uneducated deaf person is not morally responsible for his conduct.

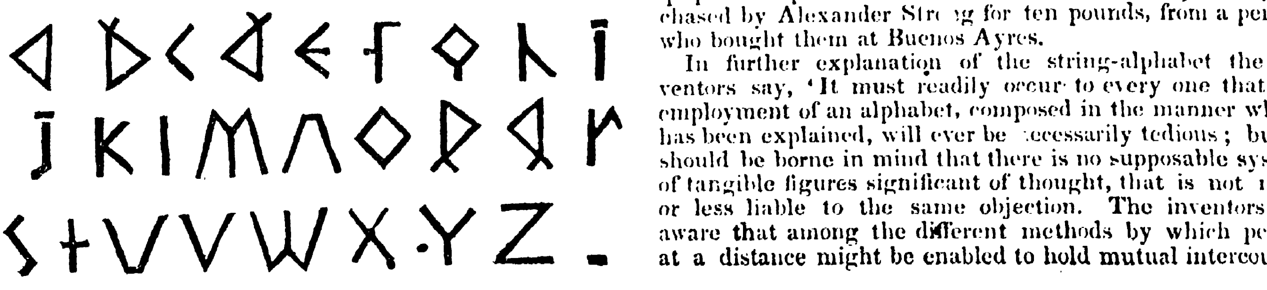
Our object in making these remarks, and the comparison with which we have opened this subject, are not designed to show that the blind are less in need of education than the deaf and dumb; we are advocates for education in its fullest extent among all classes, but more particularly among persons who labour under impediments so distressing as those we have mentioned. Our advice would be to educate such persons as highly as possible, to improve especially those faculties which they appear to possess in a superior degree to mankind generally; but not to waste time and labour in endeavouring to instruct them in arts in which they can never attain to an equality with persons who possess the full enjoyment of their senses.

In this and in other countries some attention has been paid to alleviate the sufferings and diminish the ignorance of the blind; the hand of pity has been extended to lead them into society, and the voice of sympathy has been heard by them in the midst of their darkness. Asylums in several parts of Great Britain have rescued a few from a life of listlessness and anxious care, who have been instructed in various arts with the view of wholly or partially relieving them from dependence on their friends, their parishes, or the temporary bounty of the benevolent. Still, from all the inquiries which we have been able to make, we do not think that sufficiently well-directed and persevering efforts have been used to raise them to that intellectual standard to which those may and should reach who are cut off from so many of the pleasures arising from external impressions. Enough has been accomplished to assure us that other improvements might be effected, not indeed enough to show all the defects of the plans which have been pursued, nor perhaps to suggest a system which might be regarded as complete and in all its parts practicable. It has been proved that blindness is no insurmountable obstacle to the acquisition of knowledge; but the evidence of this fact has not led to a proper system in the establishments which have been formed for the reception of the blind; that in consequence *asylums* have been provided rather than *institutions*—places of abode, rather than places for instruction. Where instruction has been professedly an object, the attempt has been to make the blind perform works to excite the wonder of visiters, rather than to confer any essential benefit upon the blind themselves; or they have been trained to execute works, which it would be irrational to suppose they could ever perform with the same exactness as persons who see. Many of these fallacies in their education were probably derived from the French schools, in which they once presented a more prominent feature than they do at the present time.

It is invariably found that persons who are deficient in one sense exercise those that are left to them more constantly, and for this reason more accurately; for the senses are improved or educated by exercise. The exquisite fineness of touch and smell in the blind, the quickness in the eye of the deaf, the accuracy with which a seaman discovers a distant vessel long before it is discernible to the unaccustomed eye of a landsman, and the acuteness of sight, hearing, and smelling in many savage tribes, are all to be referred to the same cause, namely, the constant exercise of those organs. Those persons who are deprived of one or other of their senses will, to a great degree, supply the deficiency by the aid of those which they still retain. Hearing and touch are especially cultivated by the blind: by the first they recognise speech, and the endless variations and modifications of sound; by the second they become acquainted with the external form of objects. The chief art of the instructor of the blind therefore consists in supplying through an indirect medium those ideas of which his pupil can not obtain a conception through the ordinary channels; and in doing this he will act wisely to ascertain what ideas on kindred subjects his pupil possesses, whether such are true or false, and by what process he became possessed of them; to become, in fact, the pupil of his pupil; to draw forth the stock of knowledge already attained in order to form a ground-work on which to proceed with his future instructions.

The mode which would probably first occur to a teacher in the intellectual education of the blind would be lessons delivered orally, illustrated by such analogies as would enable them to follow their teacher, taken if necessary from objects appealing to their senses. At first they would advance by slow degrees in comparison with pupils who see, but this very slowness would be accompanied by a sureness which would amply repay the pains taken to make the lessons understood. It is a fault in ordinary schools that the first steps are taken too rapidly, and one advance too quickly follows upon a former. Such schools might derive a useful lesson from the methods used in the instruction of those who are deprived of one or other of their senses. From oral instruction, the transition to a palpable language is natural. Accordingly, we find that the invention of *characters in relief* was among the earliest measures taken for instructing the blind. In the first attempt thus made, it is worthy of remark, for a reason which will presently appear, that the letters chosen were those of the Illyrian or Sclavonian alphabet modified. This alphabet was doubtless preferred on account of the square form of the letters, which it was thought would make them more obvious to the touch than ours. (*Essai sur l'Instruction des Aveugles, &c.*, par le Docteur Guillié, p. 134, 2nde edition.) It is somewhat singular that the principle of square or angular letters was abandoned, as 'not offering greater advantages than common characters:' in the present day their superiority seems to be acknowledged in the advantages which Gall's triangular alphabet possesses over all others, but of this invention we shall soon speak more fully. Moveable letters were afterwards invented, which were placed on small tablets of wood, and were made to slide in grooves, on a similar plan to some of the toys which are made for the purpose of inducing children to learn their letters, spelling, &c. It was with similar letters that Usher, archbishop of Armagh, was taught by his two aunts who were both blind; but this process was found defective for teaching blind persons. Moveable leaden characters were afterwards cast for the use of the blind, by Pierre Moreau, a notary of Paris, but the work was attended with difficulties and expenses which he was not prepared to encounter. Large pin-cushions were also brought into use for the blind, on which the characters were figured with 'inverted needles.' Perhaps the relief caused by the heads of pins would have been more eligible. Various other attempts were made in wood and metal till the time of Haüy, who invented the art of printing in relief for the blind. The latest improvements in this art are those of Mr. Gall, of Edinburgh (to whom we have referred), whose triangular alphabet when printed in strong relief can be rapidly read by persons whose tactile powers are less delicate than those commonly possessed by the blind. We give the shape of this alphabet, and regret we cannot show the relief: but we think we may assert that it is superior to every invention of this kind which has yet been produced, and deserving of every encouragement, till it is proved by experience, either that alphabetical characters are needless for the blind, or that stenography, or some other art yet to be discovered, offers greater advantages.

Mr. Gall's Alphabet.

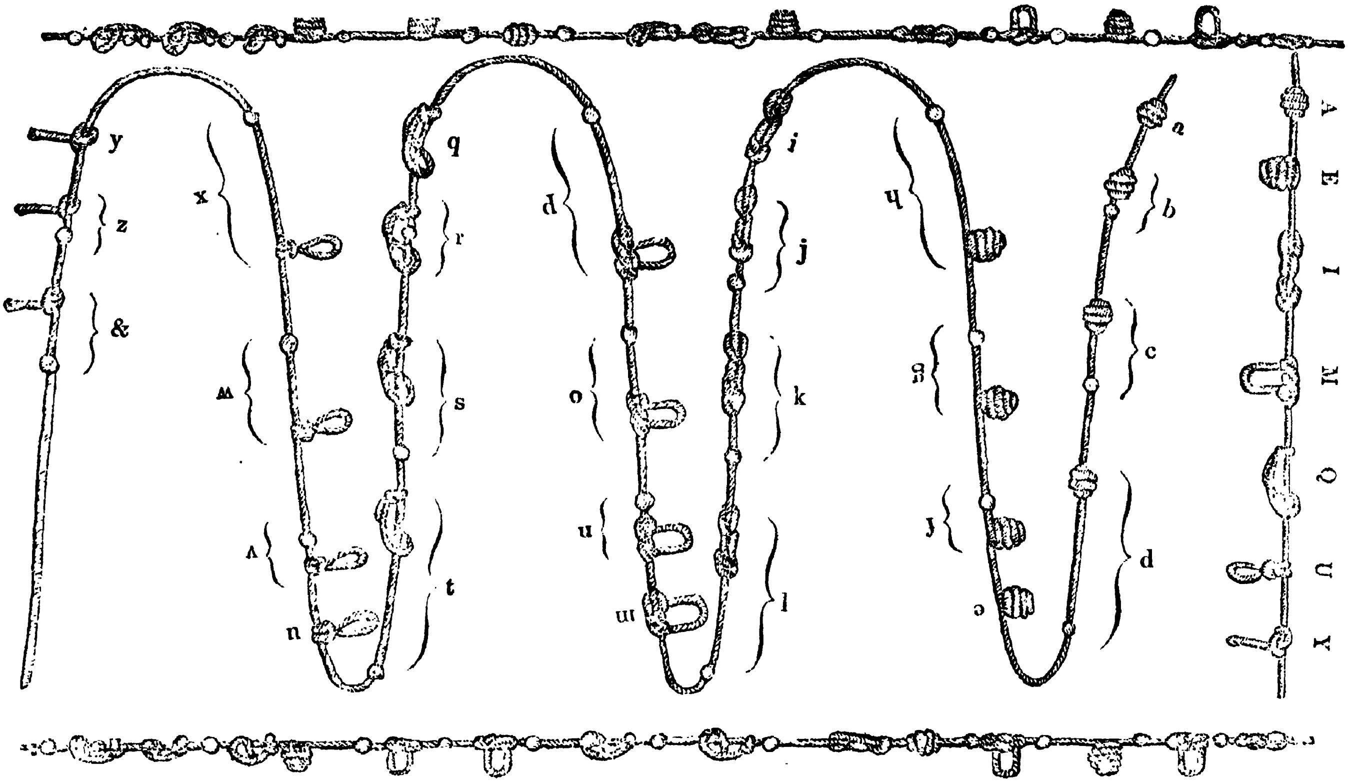


The art of printing for the blind is yet in its infancy: the refined sense of touch which they possess, together with a desire, which we are glad to see increasing, to render them in as great a degree as possible independent of a teacher, will probably lead to improvements beyond our present anticipations. We have seen books printed in the above alphabet, which may be read by seeing persons with perfect ease, and we are surprised that it has not been more generally adopted. In France and in America the ordinary-shaped letters are used. In the former country the types are very similar to those called *Script;* the letters are set upright, and they are much widened, to render them more obvious to the touch. In America, a part of the gospel of St. Mark has been printed in embossed letters, and in the early part of the present year (1835) a handsomely bound copy of this work was transmitted from the Pennsylvanian Institution for the Blind, and presented to the Liverpool Blind Asylum.

Mr. Gall, of Edinburgh, has printed in his alphabet the whole of the gospel of St. John, and also six elementary books. Though the appearance of his works has been protracted by unexpected difficulties and disappointments, it may be hoped that they will now be soon brought into extensive use, and made serviceable, as it has been proved they can be, in supplying the wants of that class for whom they were provided. Alphabets for the blind have also been invented by Mr. Hay, a blind man, who is a teacher of languages in Edinburgh, and by Dr. Fry, of Type-street, London. Mr. Craig, of Edinburgh, has either invented an alphabet, or modified one of the existing ones. In addition to these attempts to supply a desideratum so long felt, an ingenious *string alphabet* was contrived a few years ago, by David Macbeath, a blind teacher in the Edinburgh School, in conjunction with Robert Milne, one of his blind companions. The following is their description of this invention:—'The string-alphabet is formed by so knotting a cord, that the protuberances made upon it may be qualified, by their shape, size, and situation, for signifying the elements of language. The letters of this alphabet are distributed into seven classes, which are distinguished by certain knots or other marks; each class comprehends four letters, except the last, which comprehends but two. The first, or A class, is distinguished by a large round knot; the second or E class, by a knot projecting from the line; the third or I class, by the series of links vulgarly called the 'drummer's plait;' the fourth or M class, by a simple noose; the fifth or Q class, by a noose with a line drawn through it; the sixth or U class, by a noose with a net knot cast on it; and the seventh or Y class, by a twisted noose. The first letter of each class is denoted by the simple characteristic of its respective class; the second by the characteristic and a common knot close to it; the third by the characteristic and a common knot half an inch from it; and the fourth by the characteristic and a common knot an inch from it. Thus, A is simply a large round knot; B is a large round knot with a common knot close to it; C is a large round knot with a common knot half an inch from it; and D is a large round knot with a common knot an inch from it, and so on.' The alphabet above described is found by experience to answer completely the purpose for which it was invented. In the Glasgow Asylum, the greater part of the gospel of St. Mark, the 119th Psalm, and other passages of Scripture and history have been executed in this alphabet. The knotted string is wound round a vertical frame, which revolves, and passes from the reader as he proceeds.

This alphabet reminds us of the *Quipos*, or knot-records of Peru, in which the history of their country was recorded long before the discovery of America by the Spaniards. Their *quipos* were formed of the intestines of animals, and there is a similar diversity in their symbols with that in the string-alphabet of which we are speaking. An account of these quipos was published in London in 1827. They were purchased by Alexander Strong for ten pounds, from a person who bought them at Buenos Ayres.

In further explanation of the string-alphabet the inventors say, 'It must readily occur to every one that the employment of an alphabet, composed in the manner which has been explained, will ever be necessarily tedious; but it should be borne in mind that there is no supposable system of tangible figures significant of thought, that is not more or less liable to the same objection. The inventors are aware that among the different methods by which people at a distance might be enabled to hold mutual intercourse, *The String-Alphabet.*



through the medium of a language addressed to the touch, there are some that would doubtless be more expeditious than theirs; but they flatter themselves that, when all the advantages and disadvantages of each particular method are duly considered, the plan which they have been led to adopt will appear, upon the whole, decidedly the best. There can scarcely be any system of tangible signs, which it would be less difficult either to learn or to remember; since a person of ordinary intellect may easily acquire a thorough knowledge of the string-alphabet in an hour and retain it for ever. Yet the inventors can assure their readers that it is impossible for the pen or the press to convey ideas with greater precision. Besides the highly important properties of simplicity and accuracy which their scheme unites, and in which it has not been surpassed, it possesses various minor, nor yet inconsiderable advantages, in which it is presumed it cannot be equalled by anything of its kind. For example, its tactile representations of articulate sounds are easily portable—the materials of which they are constructed may always be procured at a trifling expense—and the apparatus necessary for their construction is extremely simple. In addition to the letters of the alphabet, there have been contrived arithmetical figures, which it is hoped will be of great utility, as the remembrance of numbers is often found peculiarly difficult. Palpable commas, semicolons, &c. have likewise been provided to be used, when judged requisite. The inventors have only to add, that sensible of the happy results of the invention to themselves, and commiserating the fate of their fellow-prisoners of darkness, they most earnestly recommend to all intrusted with the education of persons deprived of sight carefully to instruct them in the principles of orthography, as the blind being in general unable to spell is the chief obstacle to their deriving, from the new mode of signifying thought, the much-wanted benefit which it is designed to extend to their melancholy circumstances.'

We entirely agree in the views here taken of the string-alphabet; as an auxiliary to the blind in the acquirement and application of language, and in the absence of a tangible writing on paper, we think no invention is superior to it, and we should be glad to have seen it in more common use among the blind in our recent inquiries at various institutions. The advice to instruct the blind carefully in spelling is important, for if this acquirement be not made, they cannot communicate by language with their fellow men otherwise than orally. To those blind persons who have lived together in institutions, and formed friendships which they wish to continue when separated by distance, the string-alphabet offers a mode of correspondence as perfect as our pen, one too which may be intrusted to ordinary persons to convey without any probability of the communication being deciphered.

David Macbeath, one of the inventors, died suddenly, at the age of forty-two, in November, 1834; he had been connected with the Edinburgh Asylum, as pupil and teacher, for twenty-five years. His inventions for teaching were numerous, and applicable to instruction in music, arithmetic, and mathematics. His string-alphabet was fully described in the 'Edinburgh Philosophical Journal,' some years ago. He conducted the public examinations of the Edinburgh pupils, where he never failed to excite the interest and attention of those present towards the objects of his solicitude. One of his pupils is at present a teacher in the Glasgow Asylum, and two others are similarly employed in America.

In the infancy of the art of teaching the blind, *raised music* was invented, in order that they might be enabled to acquire their lessons independent of a master. This invention is at present little used, for the constant practice of those who pursue this branch of study is a continual exercise of the memory, and they are able to learn very long pieces by the ear alone. We may here mention the invention of Don Jaime Isern, the object of which is to enable a blind composer to transfer his thoughts to paper in the usual musical notation, without the necessity of employing an amanuensis. For this invention the large silver medal of the London Society for the Encouragement of Arts, Manufactures, and Commerce was given to Don J. Isern in 1827. There is a full description of it, with illustrative engravings, in vol. xlv. of the 'Society's Transactions.' In the same volume there is an interesting communication on the subject of types for the blind, by Mr. G. Gibson of Birmingham. This communication is connected with various inventions which we have had the pleasure of inspecting, and of which we shall give a short account, referring our readers who desire to be made perfectly acquainted with the invention to the work above mentioned. Mr. Gibson's aim has been to supply the blind with a mode of writing and keeping their own accounts. 'A cube of wood, or of any other convenient material, the size of which will depend on the delicacy of touch in each blind person, is to have raised on one side of it a letter, or figure, or stop, in the manner of a printer's type. On the opposite or lower side of the cube is a representation of the same character as is on the upper side, but formed of needle-points inserted into the wood. If therefore a piece of paper be laid on a cushion, or surface of felt, and the type be pressed down, the points will enter the paper, and form on the under surface of it a raised or embossed representation, by the projection of the burs where the points have penetrated, and this embossed character may be distinguished, and consequently read by the touch.' In its outward appearance, the whole apparatus of Mr. Gibson forms a small piece of cabinet furniture. When the top is thrown open an even surface of cushion presents itself. Upon this there is a flat piece of mahogany about an inch broad, which can be moved from one notch to another, to any part of the desk. This is for the letters to lie against, like the composing-stick of a printer. The letters he uses are a composition of tin and lead; the upper surface is elevated so that he can distinguish the letter, and the under surface has inserted in it needle-points of the shape of the letter on the upper surface. In writing the Lord's Prayer, after the paper is placed, he takes O out of its division, and puts it at the beginning of the line, then U, then R, gently pressing each letter down, as he puts it next the preceding one. At the end of a word he inserts a small mahogany space, and proceeds till his performance is complete; whether it be a copy of any thing which he wishes to make, or an original piece of composition. It will be observed that, by putting two or more pieces of paper underneath his pointed types, copies will be multiplied. The letters are in small divisions, which occupy side-drawers in his printing cabinet. The use of this machine implies more knowledge than the uneducated blind possess, as they must know how to spell. However, it is a part of its object to teach spelling. For this communication to the London Society for the Encouragement of Arts, &c., Mr. Gibson was presented with the gold Vulcan medal of the Society. Another of Mr. Gibson's inventions, which has not been made public, may be here noticed. It forms a drawer of the cabinet above mentioned, and is intended for working the rules of arithmetic. This Mr. G. calls his slate. It is divided into rows by elevated slips of wood, along which the figures are to slide. Like the types they are formed of metal, but have no needle-points underneath. We have seen him perform examples in multiplication and other rules by this apparatus, which is simply and beautifully conceived. It is obvious that all the elementary operations in arithmetic may be performed by it, and that by the union of this and the writing apparatus, a blind person may write his own letters, and keep his own accounts. We have dwelt upon the subject of reading and writing for the blind, feeling that they are deserving of all the importance which can be attached to them. We return to the early methods pursued in this art.

Embossed maps and globes for teaching geography would naturally be suggested to those persons who were engaged in teaching reading to the blind by raised figures. M. Weissembourg, a blind man of Mannheim, appears to have been the first person who made relief-maps; up to which time the instruction given to the blind on geography was merely oral. Various methods for producing maps of this character were employed, but at first without success; after a time however the chief difficulties were conquered, and a process which is minutely described by Dr. Guillié has supplied all the maps which have been in use at the Parisian institution to the present time. The map of a country is pasted upon thick pasteboard, a wire is then bent round the curves of the coast, and along the courses of the rivers; these wires are fastened down, and a second map in every respect similar to the first is pasted over it: when this is pressed, the windings of the wire will be easily traced by the touch. It is stated in the 'North American Review,' No. lxxx., that an improvement has been made in the manufacture of maps for the blind, which 'consists in having a metal plate engraved with all the lines, elevations, boundary-marks, positions of towns, &c.; from this plate impressions are struck in pasteboard, which produce a perfect embossed map.' It has sometimes occurred to us that the geographical reliefs of Kummer, of Berlin, might be rendered useful in the instruction of the blind. The wider a useful invention can be spread, the cheaper it will be afforded. There is a short notice of Kummer's reliefs in the first Number of the 'Quarterly Journal of Education,' p. 190.

Palpable methods have also been adopted for making the blind acquainted with different branches of astronomical knowledge, and, in addition to raised maps of the heavens, various ingenious instruments have been contrived to further their progress in the science of astronomy. The application of such apparatus to the purposes of teaching has been attended with encouraging success. We shall detail some of the methods pursued in teaching arithmetic when we speak of the Edinburgh Institution, where the well-known invention of Dr. Saunderson has been so much improved that, by its means, any operation may be readily performed. For a description of the original invention, which was the united work of Dr. Moyes and Dr. Saunderson, we refer to the article 'Blind' in Rees's *Cyclopædia*, or in the *Encyclopædia Britannica*. By the improvements which we shall describe, it will be seen how greatly the simplicity of the contrivance has been increased. Previous to these tangible methods of teaching arithmetic the blind were instructed on this subject orally, the process on their part being entirely mental. A publication of late years, which is intended exclusively for the blind, is of a higher character and aim than any that have preceded it, though not one which will generally be considered as equal to many of those mentioned, in point of utility. The work to which we allude is an elementary treatise on mathematics by the Rev. William Taylor of York, called 'The Diagrams of Euclid's Elements of Geometry, arranged according to Simpson's edition in an embossed or tangible form, for the use of blind persons who wish to enter upon the study of that noble science,' York, 1828. As a means of leading to the acquisition of a science for which some blind persons have shown a predilection, we welcome the appearance of this beautifully-executed work, and we hope that the blind generally who show a superior aptitude for the exact sciences, even though instructed in a degree at the public expense, will have all the advantages which works like Mr. Taylor's aided by good instructors can confer.

Several centuries ago the blind were sufficiently taught to show that the privation under which they labour is no considerable obstacle to high attainments. Manual helps were contrived by some of the earliest learners to assist them in obtaining various kinds of knowledge: but it would be more curious than useful to trace the progress of the art during its infant state. It will be enough for us to refer to the period when public interest was excited, and when public beneficence promised to confer enduring advantages on those whom accident or disease had deprived of sight. The instruction of the blind, as an art, is of very modern date, and all the improvements which have been effected on the earlier methods are the work of our own days. The blind, as a body, can scarcely be considered as having derived much benefit from the means which have been taken to ameliorate their condition. Several causes have contributed to prevent the diffusion of that experience which has been found successful. Among these may be mentioned the want of a union of purpose and principle among those persons in whom the management of asylums has been vested, the distance of the various asylums from each other, the small number of such establishments, and an ignorance of the fact that so large a number of the blind are intermingled with our seeing population. But there is reason to hope that some of these causes will not exist much longer. Within the past year two new institutions have been announced in populous districts of our own country, and several abroad; and two of our older asylums are extending their benefits to a greatly increased number of objects.

Institutions of a philanthropic tendency have frequently originated with members, individual or collective, of learned societies; and such societies have lent their assistance and patronage to various efforts for advancing the condition of mankind, and removing the obstacles to improvement. The attempts of M. Haüy to systematize a plan for the education of the blind are the first which are deserving of especial notice. His methods were submitted to the Academy of Sciences of Paris, where they received all the encouragement he looked for. The commissioners chosen to report upon the means which he proposed to employ suggested to the Academy not only to bestow its approbation upon M. Haüy, but also to invite him to publish his methods, and to assure him of their readiness to receive from him an account of his future progress. It appears that many of the plans recommended by Haüy in his 'Essay on the Education of the Blind' were not so much his own inventions as adaptations of the ingenious contrivances of individuals of different ages, and in different countries, who had preceded him in this benevolent work. The celebrity of certain blind individuals, partly the result perhaps of pains-taking teachers, and partly of their own highly-gifted minds, had reached the ears of Haüy. By a happy exercise of benevolence and talent, aided by that enthusiasm without which the greatest labour is ineffectual, he formed the outline of a system of instruction, which required only time, and the modifications which discover themselves in every course of rational teaching, to be brought into successful operation. He wished to make the sense of touch do that for the blind which the Abbé de l'Epée had made the sense of sight do for the deaf and dumb. He wished to see the fingers of the blind employed in reading written language, and for this purpose he invented the noble art of printing in relief, which will hand down the name of Valentine Haüy with honour to posterity. Haüy offered to instruct gratuitously the blind children who were under the care of the Philanthropic Society. He commenced his instructions in 1784, and taught his pupils reading, writing, arithmetic, geography, composing types, and printing. In 1786 public exercises were performed by the pupils at Versailles, in the presence of the king; these exercises excited much astonishment, and there seemed to be little doubt of the stability and success of the undertaking. Large funds were subscribed, and the school was filled with pupils; but the commencement had been made on a scale too extensive for its regular maintenance, the warmth of popular feeling cooled, and as the institution was unsupported by government, Haüy never enjoyed the fruits for which he had toiled. His school was not however suffered to fall entirely; it was taken up by the Constituent Assembly of the Revolution, and has since been supported at the expense of the government. The establishment of which we are speaking is the School for the Young Blind at Paris.

Previous to the time of M. Haüy no success had been obtained in the art of printing for the blind, though it had been attempted in a variety of ways, and by different persons. Letters were engraved in wood, not cut in relief, but in the ordinary manner of wood-cutting. The configurations of the letters were found to be difficult to trace, possessing none of the advantages which letters in relief afford. We have mentioned Pierre Moreau's plan, and the cause of its having been forsaken. Haüy's was a bolder invention than any other offered to the public. Not only has it never been superseded, but from it have arisen all the modern attempts to teach the blind reading by means of relief-characters. An objection has been made to the use of relief-characters which deserves attention,—that the fingers of children soon level the uneven surfaces. Gall's experiments (see page 83 of his work) appear to have been quite successful in providing a remedy for this evil. He says that his relief-letters 'may, upon a hard table, be rubbed by the fingers for any length of time, and with any degree of pressure and speed, without the slightest deterioration; they may even be violently beaten on a board, with the fleshy part of the closed fist, and the relief will remain as perfect, and will stand out as prominently as ever.' He also suggests, as children sometimes, when learning their letters, tear the reliefs with their nails, that for the sake of economy the letters shall be taught in the first instance from thin metallic plates. Haüy had the satisfaction to see his system, so far as it had been carried into effect, extended to other countries. He formed an institution at St. Petersburg, having been summoned thither by the emperor; he also formed one at Berlin. Thus, though the zeal which had been excited at Paris by his first operations was beginning to relax, Haüy had the pleasure of seeing similar institutions arise in other cities in Europe and attract so considerable a share of patronage as to give promise that his art would not be forgotten.

There are at Paris two celebrated institutions for the blind. The more ancient of these is the *Hôpital Royale des Quinze Vingts*, founded by St. Louis in 1260, for the reception of such of his soldiers as had lost their sight in the East. At its first establishment it consisted of *blind* and *seeing* persons, the latter being the conductors of the former. As its name indicates, it receives *fifteen score*, or three hundred blind persons. This noble asylum continues, as it was originally placed, under the government of the grand almoner of France. To obtain admission it is necessary that applicants be blind and indigent; they are admitted from all parts of the kingdom, are lodged in the hospital, and receive twenty-four sous (about a shilling) a day for their food and clothing. No instruction is afforded to the inmates of the *Quinze Vingts*: some of them, however, execute works, which, for their ingenuity, attract and deserve attention.

The other Parisian establishment for the blind is the *Institution Royale des Jeunes Aveugles*, of which Haüy was the founder. It contains about a hundred young persons of both sexes, who are maintained and educated at the expense of the state for eight years. Paying pupils are also admitted. Some particulars respecting this institution appeared in the North American Review for July, 1833, of which we shall make use; and though we do not adopt all the conclusions of the writer, some of the suggestions there made are deserving of the attentive consideration of all persons who feel an interest in the moral and intellectual improvement of the blind.

'The institution for the young blind is intended solely for their education, and none but children between ten and fourteen years of age are admitted: there are one hundred of these interesting beings in the establishment, and a more delightful spectacle cannot be imagined than a view of its interior. You see not there the listless, helpless blind man dozing away his days in a chimney nook, or groping his uncertain way about the house; but you hear the hum of busy voices—you see the workshops filled with active boys, learning their trades from others as blind as themselves—you see the school-rooms crowded with eager listeners taught by blind teachers. When they take their books you see the awakened intellect gleam from their smiling faces, and as they pass their fingers rapidly over the leaves, their varying countenances bespeak the varying emotions which the words of the author awaken: when the bell rings they start away to the play-ground—run along the alleys at full speed,—chase, overtake, and tumble each other about, and shout, and laugh, and caper round, with all the careless heartfelt glee of boyhood. But a richer treat and better sport await them: the bell again strikes, and away they all hurry to the hall of music; each one brings his instrument, and takes his place;—they are all there—the soft flute and the shrill fife—the hautboy and horn—the cymbal and drum, with clarionet, viol, and violin; and now they roll forth their volume of sweet sounds, and the singers, treble, base, and tenor, striking in with exact harmony, swell into one loud hymn of gratitude and joy, which are displayed in the rapturous thrill of their voices, and painted in the glowing enthusiasm of their countenances.'

The writer of the article referred to laments that these appearances of happiness and usefulness are deceptive: that real advantages are not conferred; that with all this display which carries away the heart and the feelings of the superficial spectator, comparatively little good is done, as may be discovered by the more constant and accurate observer of the methods pursued, who will ascertain that a far less amount of benefit accrues to the inmates than might be expected from the extensive means of usefulness possessed in such an institution. It is stated that not one in twenty, at the expiration of the time spent in learning, eight years, is able to earn his own livelihood. These failures are attributed to various causes, the chief of which is one that has tended to wither the fair promise of many an institution in our own country. The North American Reviewer says, 'We looked in vain for the improvements which ought to have been made in the apparatus of Haüy, during the thirty years which had elapsed since his death; we looked in vain, for none existed. A narrow and illiberal jealousy; an attempt at secrecy and reserve met our endeavours to examine the nature of this apparatus; and when we inquired whether some obvious and simple changes might not be made for the better, we were repelled by the sapient and reproving answer, that surely if any improvements could have been made, such great and good men as the Abbé Haüy and his successors would not have overlooked them.' Independently of this spirit of illiberality, there seem to be other causes of failure, as fatal to the efficiency of the institution, though not so offensive to the inquiring stranger. All the pupils have to spend a certain number of hours every day in study, and also a certain number of hours in handicraft employments. Thus, if a person have a peculiar turn for some branch of mechanics, no provision is made to allow him to cultivate such talent. If another possess the faculty for learning languages, or for mathematics, he is not allowed to follow such inclination; but he must devote himself for a stated portion of every day to the acquisition of some handicraft trade. All are expected to study music; 'and if they have no ear at all for it, they must study it without an ear.' Another fault is the change of employments to which the pupils are subjected: thus a few months are given to making whips, a few months to weaving, a few months to netting, &c.; so that in learning one art, the boy forgets the one which had preceded it, and while a superficial knowledge is acquired of several trades, excellence is not attained in any one. How much better than this would it be to allow those who have a talent for the higher intellectual studies to pursue them, and to become teachers of those branches of learning in which they excel; to direct the mechanical tact and inclination of others, so as to make it an available means of subsistence, by educating it to perfection; and in all cases to regard the dispositions, the capabilities, and the genius of a pupil, before deciding whether he shall be a weaver or a mathematician, a musician or a maker of baskets; and such decision being formed, to let the education of the pupil be pursued with a direct tendency to gratify his wishes, and thus to enable him to earn his future support in a manner pleasing to himself. The manual labours which are taught in the Parisian institution (see Dr. Guillié's Essay) are knitting, spinning, netting, making purses, list shoes, list carpets, woollen-plush shoes, whips, bottoming chairs, rope-making, basket-making, and straw, rush, and plush mat-making. These are the inferior kinds of labour, and consequently the worst paid; there is therefore the greater necessity that the blind workman be skilful in his art, that he may the better enter into competition with those who see, in obtaining a livelihood. We have already expressed an opinion that the blind who have good talents should be educated to become teachers, and we believe they would succeed in the office, and thus become valuable members of society.

The first British Asylum for the Blind was established at Liverpool in the year 1791. This institution has hitherto been liberally supported by annual subscriptions, by legacies, and by donations. It derives an income of *300l.* per year from the chapel which is attached to it, and a still larger sum from the payments made by the friends of the pupils, or by the parishes to which they belong; during the year 1834 it received for articles manufactured by the inmates of the asylum nearly *1600l.*, but the produce of these labours does not assist the funds of the establishment. The instruction of the blind in manual labour seems to be the primary object with the directors of the institution. The trades which are taught are those of basket-making, rope-making, weaving, shoemaking, sewing, knitting and platting sash-line. The most profitable of these arts is the rope-making; the locality of the institution contributes to the advantages derived from this trade. The sugar-houses require so vast a supply of cordage, that it can scarcely be furnished in a sufficient quantity. The next most profitable labour is the weaving of carpets, lobby-cloths, and bear-rugs. Masters possessing sight are regularly employed in teaching the various trades; the reasons why the institution derives no pecuniary advantage from the extensive labours carried on are sufficiently obvious when the expense of experienced masters is considered, the waste of materials by the labourers who are chiefly learners, and their quitting the asylum when they can earn enough to maintain themselves.

The total number of persons who have been received into this asylum from its commencement to the publication of the report (December, 1834) from which this portion of our article is derived, was 929. Some very interesting details are given in the same document on the causes of the calamity under which the pupils labour, so far as could be ascertained by the officers of the institution.

Liverpool Institution, total number received 929.

	Totally.	Partially.	Total.
Blind from their birth . .	49	28	77
,, ,, small pox . .	165	42	207
,, ,, inflammation . .	174	108	282
,, ,, cataract . .	34	78	112
,, ,, external injury .	47	27	74
,, ,, defect in the optic nerve	60	45	105
,, ,, imperfect organization	2	8	10
Lost their sight at sea . .	8	1	9
,, ,, ,, by gradual decay .	4	0	4
,, ,, ,, after fever .	7	2	9
,, ,, ,, after measles .	5	3	8
,, ,, ,, after hooping cough	1	0	1
,, ,, ,, after convulsions .	2	3	5
,, ,, ,, from causes not mentioned or imperfectly described	14	12	26
	572	357	929

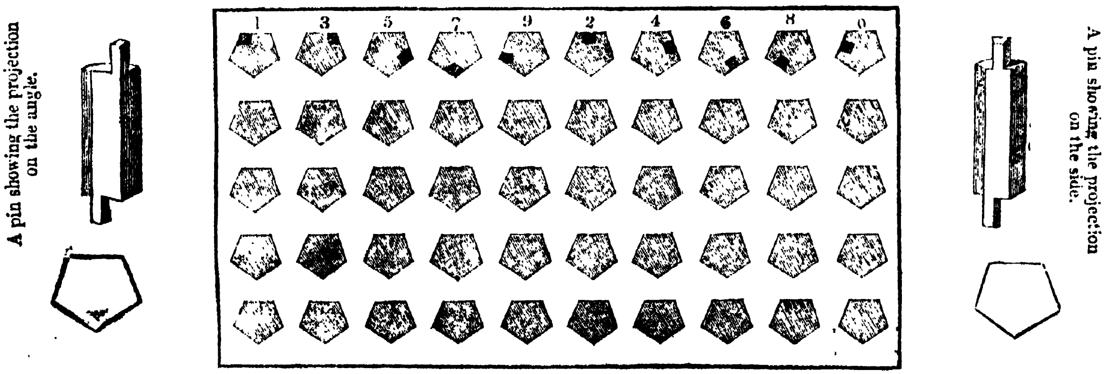
From the reports of the Liverpool Asylum, as well as from others which we have seen, the blind seem to be pretty equally scattered in all parts of the kingdom. Of the 929 persons who have been inmates of the Liverpool Asylum, 162 have belonged to Liverpool, 218 to other parishes in Lancashire, and 549 to distant parts of the kingdom. A large proportion of the income of the institution is derived from Liverpool and its vicinity. The blind of that district have therefore a just priority of admission. There are 106 pupils in the Liverpool Asylum; 23 were admitted in 1834, and 28 left. Among those thus admitted the youngest is twelve years old, 18 are between twelve and twenty, and 5 are between twenty and thirty years old. The ages of the 28 who left are not given in the report. Most of those who have completed their education receive a gratuity of from two to five guineas when they quit the asylum, which sum is intended to assist them in procuring a few tools and materials for commencing the trades they may have been taught. This provision is both benevolent and wise; for there are numerous cases which come under the notice of the directors where poverty accompanies the deprivation of sight, and where, consequently, the instruction imparted would be of no practical benefit were not some means afforded of making it available to provide for their common necessities.

The intellectual cultivation of the blind is not made an object of any great importance at the Liverpool Asylum. The observances of religion appear to be regularly regarded; prayers are read in the chapel morning and evening, and the chaplain attends twice in each week to teach the catechism. The inventions used for the instruction in reading and writing appear to be known to some of the officers connected with the establishment, but no arrangements for their introduction seem to be contemplated. The penal discipline by which the good order of the institution is maintained consists chiefly of privations from music and holidays, and occasionally, in the case of junior male pupils, of corporal punishment, which is always inflicted in the presence of the other male pupils: in such cases the birch rod is used. The masters with sight are for basket, rope, and shoe making, and weaving; and those without sight, for music. The work-mistresses are for basket-making, platting sash-ropes, knitting, and sewing. The salaries and gratuities for the year 1834 were as follow:—to the superintendent and his wife, *283l. 10s.*; to the wardrobe keeper, *21l.*; to the master weaver, *70l. 5s.*; to the master roper, *70l. 5s.*; to the master basket-maker, *70l. 5s.*; to the master shoemaker, *70l. 5s.*; to the singing master, *70l.*; and to the music master, *90l. 10s.*

In the year 1792 an asylum for the blind was established in Edinburgh. The benevolent Dr. Blacklock, who resided in that city many years, had long anxiously wished that such an establishment should be formed for the education of those persons who, like himself, were deprived of sight. He mentioned his wishes to his friend Mr. David Miller, who was also blind, and was himself an eminent example of what might be effected under the influence of early and judicious instruction. In the year mentioned, it was determined by Mr. Miller and the Rev. Dr. David Johnston, of Leith, that an attempt should be made to provide an asylum, and means were taken to call public attention to the object. Mr. Miller communicated with the Abbé Haüy, and in many ways rendered important services during the infancy of the institution. The chief end in the formation of the contemplated asylum, next to imparting ordinary instruction (orally, it is presumed), and imbuing the minds of the objects with religious truth, was to place them under such superintendence as should train them in those trades in which the blind 'are best fitted to excel;' at the same time rewarding them for their labours according to their progress and proficiency. In later years the directors of the asylum have extended their views, devoting increased attention to the intellectual culture of the pupils; but still the main object appears to be that of training them to habits of manual labour. The economical character of the Edinburgh Asylum must be a striking feature to all who compare its expenditure, considering the amount of good it accomplishes, with that of similar institutions. We have frequently heard of the excellent management of the public charities of Edinburgh; but in none is such management more visible than in this. In 1806 the directors formed a separate establishment for females, and since that time they have opened a school for the instruction of the young blind. It is by early training only that the blind, in common with others, can be brought under an effectual mental and moral discipline. By giving instruction to the young in the higher departments of knowledge, and by thus raising the intellectual character to the elevation of which it is capable, we are of opinion the directors will discover that the arts in which the blind are best fitted to excel are not the ordinary mechanical trades, to which, in our British institutions, and too generally abroad, all higher considerations have been sacrificed. Why are not their mental powers, which are unaffected by their physical calamity, cultivated? Such cultivation will qualify them for occupations in which they may succeed as well as those who possess the advantages of sight. The enlightened policy of the directors of the Edinburgh Institution has placed them in the first rank among the benefactors of the blind: their school for the young is a most interesting section of their establishment; and it may be hoped that many of its pupils will be trained to higher occupations than those of basket-making, weaving, &c. We do not anticipate that all the blind can be exempted from manual labour, any more than that all other men are fitted for employments requiring a high degree of intellectual vigour, and acquirements which even the greater portion of mankind are unable or unwilling to make: but we do not hesitate to affirm that the blind have been systematically trained in arts in which they never can enter into competition with seeing persons; and that they have not been sufficiently educated in that kind o knowledge in which they might have become at least as perfect as those who possess all their faculties. The forme part of our proposition is allowed by the directors of the Edinburgh Asylum, who say that 'when they (the blind) become as skilful workmen as their circumstances admit, they still labour under a disadvantage unknown to others. An argument which might with great propriety be used t enforce the advantage of mental cultivation in preference t manual dexterity, is the loss invariably attendant on the manufactures carried on at the asylums. It appears to us from our examination into the expenses of different establishments, that the more extensive the scale on which th manual arts are conducted, the greater the losses, fro waste of materials, a succession of learners, &c. On th score of cheapness therefore it is desirable that such opera tions should be confined within as narrow *limits* as ma seem prudent, and that intellectual *education should* be extended as widely as the talents and qualifications of the pupils will allow. Instead of the accounts of such institutions showing so great an amount of positive losses, we should not only see this item reduced, but find the pupils qualified for a sphere of usefulness superior to any which hey can ever reach by any attainable degree of dexterity in manual occupations.

In the Edinburgh Asylum, the whole machinery seems o be of a high order; the devoted attention of the different fficers is visible in the discipline and happiness of the inmates, and there can be no doubt that the institution is ffecting great good. The young blind are instructed in reiting the scriptures, in spelling, in grammar, in vocal and nstrumental music, in reading, by means of the sense of eling; in writing, arithmetic, mathematics, history, geography, and astronomy. The means by which instruction in these various branches is conveyed have been mentioned; in all institutions of this nature they must be generally the same, varying perhaps in some of their details. Several of the mechanical contrivances for conveying scientific knowledge to the pupils, are the inventions of Mr. Johnston, the secretary (nephew of Dr. Johnston, who was named as one of the founders of the institution), in conjunction with Professor Wallace, a gentleman who is deeply interested in all that concerns the institution. An orrery, a cometarium, and raised maps of the heavens, all so constructed as to convey information by the touch,—while the reasoning powers are at the same time addressed,—are among the inventions of these gentlemen. The map of the world is described as comprising 'the eastern and western hemispheres, represented on each side of a circular board. The land is made rough, the seas, lakes, and rivers smooth. Towns are represented by small pins. Mountains are ridged, and boundaries simply raised. Degrees of latitude are marked round the edge of the circle, of longitude along the equator, which is raised above the surface of the earth. The orrery represents the orbits of the planets by brass circles, and the planets themselves are shown by spheres indicative of their relative dimensions; the spheres slide upon the brass orbits. The ecliptic exhibits raised figures of the signs of the zodiac, the degrees of the circle, and the days of the month, all tangible, and adapted to the learner who has to depend upon touch for his impressions. The *arithmetical board* has been much improved at the Edinburgh school. It is 16 inches by 12, and contains 400 pentagonal holes with a space of a quarter of an inch between each. The pin is simply a pentagon with a projection at one end on an angle, and on the other end on the side. Being placed in the board, with a *corner projection to the left upper corner* of the board, it *represents 1; proceeding to the right upper corner it is 3;* the next corner in succession is 5; the next 7, and the last 9. In like manner the side projection, by being turned to the sides of the hole, progressively gives 2, 4, 6, 8, 0. The size of the pentagon, and a drawing of the pin, showing the projections on the side and angle, are given with the board below.

The Arithmetical Board.


A pin showing the projection on the angle.
1
3
5
7
9
2
4
6
8
0
A pin showing the projection on the side.

By the use of this board the pupils may be carried to any extent in arithmetical knowledge, and make their calculations with as much satisfaction as those who see. We have the testimony of Dr. Guillié, that the blind study the exact sciences under great advantages, and with remarkable success: but we cannot agree with the doctor that the blind, any more than *les clair-voyans* have a natural disposition for mathematical studies. The eminent success of Saunderson, Moyes, Gough, and others, afford sufficient proof that blindness is no great impediment to such pursuits; there may possibly be some advantages consequent on the degree of abstraction which appears necessarily to accompany blindness. On this supposition however we do not lay much stress, because we cannot admit that there is *naturally* any compensative principle by which men who labour under one defect or deprivation are enabled to exercise the powers which are left to them with greater accuracy than others who have no such deficiency. If a seeing person would cultivate his sense of feeling to the same extent as the blind, his perceptions of touch would be as delicate as those of the blind man. It is not probable that so refined a cultivation will ever be tested by experience, as it would require a greater degree of philosophical curiosity than we ever witnessed or heard of, and be attended with a longer and more painful effort than we think any one would voluntarily undergo for the sake of making the experiment.

Of the Edinburgh Asylum we have only to add, that from its admirable management it may be inferred that there exists both the disposition and the capability, so far as its managers are concerned, to make it all that could be wished as an establishment for the blind, but it is matter of much regret that it is maintained with the greatest difficulty.

The asylum for the blind at Bristol was instituted in 1793; respecting its history up to a very recent date little is known to the writer. Its committee appears not to have contemplated any operations on a very extensive scale till within the last few years. It was founded as an 'Asylum or School of Industry,' and its chief support seems to have been derived from legacies, donations, and payments on behalf of pupils. Its benefits have been extended to nearly 200 persons, most of whom, the reports state, have returned to their homes, able and willing to support themselves. Thirty-three pupils are at present in the asylum; 'the females are boarded and lodged in the house, and the males who have not friends are boarded in decent and sober families in the neighbourhood of the asylum.' This institution is open to blind persons from every part of the kingdom; the present pupils are from various counties in the west of England. In consequence of a great augmentation of the funds by two legacies which were left to the institution in the years 1829 and 1830, an act of incorporation was obtained in 1832; it having been considered by the trustees in whom the above-mentioned legacies were vested, that thus placed 'under the protection of legislative control,' the permanence of the asylum would be secured, and its usefulness extended. A new building is about to be erected in the Gothic style of architecture, of which it is intended that a chapel shall form a prominent feature. About an acre and a half of ground, eligibly situated, has been purchased for the purposes of the proposed edifice, in which accommodations are to be provided for eighty or a hundred pupils. The trades which have been hitherto introduced are those which are pursued in other asylums for the blind; and the pupils remain under instruction until they are qualified to support themselves by their labour.

With the increased prosperity of this asylum the committee have resolved to increase its usefulness. Having meditated the immediate introduction of plans for the intellectual improvement of the blind, they mention arithmetic, geography, and the mathematics, as sciences which are found to be accessible to them, and particularly inviting in some instances. It appears that in effecting the improvement of the pupils of this asylum, oral instruction is chiefly *to be depended upon, with doubtless all the help which models and raised diagrams can supply; the means* of imparting the requisite knowledge of reading and writing, as a foundation for more important acquisitions, and as rendering the blind in great measure independent of masters, were not sufficiently evident to the committee at the time when the improvements in the system were resolved upon, though in their report (1834) the committee express sanguine hopes that on these important subjects 'some method, combining distinctness with simplicity and cheapness, will in time be discovered.' How soon these hopes were to become, to a certain extent realized, will be seen from the following notice which appeared in the 'Bristol Mirror' at the commencement of the present year (1835). 'In our city the blind are now taught to read with the most simple characters that can be invented, and with great facility. The complete success of the experiment has been witnessed at the Asylum for the Blind, and at various other places, where lectures have been given explanatory of the system. The characters are employed not only for reading but likewise for writing, arithmetic, and music; and they are so simple, that to any book for the blind, not more than half the number of types are required that are necessary to print the same for those who are blessed with sight.' Should the event prove as successful as is intimated in the above announcement, and so great a barrier to the improvement of the blind be removed, it will be desirable that the different institutions should unite their exertions, and set apart a common fund to supply their pupils, as well as other blind persons, with so powerful an auxiliary to their progress in knowledge. In reply to our inquiries respecting this invention, we have ascertained that the characters employed are stenographic, and that they are produced in relief on a paper similar to Gall's. The alphabet is composed of thirteen simple characters, and thirteen formed from the roots of these with a crotchet-head to each. There are ten double letters from the same roots, distinguished also by the crotchet-head: these also represent the nine figures and the cypher, whether used as numerals or ordinals. In all thirty-six characters are employed. The advantages attending the use of stenographic characters seem to be in the saving of types, paper, and labour, thus materially diminishing the cost of books for the blind. The disadvantages attending the system we are speaking of appear to consist chiefly in the confusion which the learner must feel in having but one character employed in several offices, as in the double letters, numerals, and ordinals, and in the necessity that every person should be a stenographist who communicates with the blind by writing. These difficulties are not very great for persons to overcome who have never been accustomed to a written language. The friends and correspondents of the blind may readily avail themselves of the simple stenography which Mr. Lucas, of Castle Street, Bristol, has invented. The blind may employ types to communicate with their friends; and it is our opinion that a substitute for relief letters, for all occasions where great permanency is not requisite, may be found in characters boldly written with viscid ink on common writing-paper and sanded while wet.

The manner in which the characters of Mr. Lucas are employed may be seen in the following commencement of St. John's Gospel, only that we give the extract in Roman letters instead of using the stenographic characters.

t gospl b st jon, chap: 1.

in t bgini ws t wrd a t w ws w g, a t w ws g. t sam ws n t bgini w g. l thins wr mad b hm, a wo hm ws nt athin mad tht ws mad. in hm ws lif a t l ws t lit f mn.

It will be observed that the repetition of numerous letters is avoided; particles are represented in most instances by their initial letter, and when a word, having been once mentioned, recurs immediately, or frequently, it is represented by its initial letter also.

The 'School for the Indigent Blind' in London was established in 1799 by four gentlemen of the metropolis, Messrs. Ware, Bosanquet, Boddington, and Houlston. At first the pupils were few, and it did not attract any extraordinary share of public attention. About eleven years after its formation, the patronage of the public enabled the managers to take on lease a plot of freehold ground in St. George's Fields, opposite to the end of Great Surrey Street, where suitable buildings were erected, within which the institution is still carried on. An act of parliament was obtained in 1826, which invests the committee with all the rights *and privileges of a corporation, and they then purchased* the freehold of the ground on which the buildings had been erected. These buildings having been found insufficient for the purposes of the establishment, the committee have lately purchased an adjoining plot of ground, upon which a new and enlarged building is now being erected. In 1800 there were only fifteen persons in the asylum: the present number of inmates is 112, fifty-five males, and fifty-seven females. During thirty-three years 186 persons have been returned to their families enabled to provide either wholly or partially for their support. The inmates are 'clothed, boarded, lodged, and instructed.' It is understood that the number of persons taken into this asylum is about to be augmented, and that 100 of each sex will eventually be admitted. The funds of the charity are ample. The receipts have seldom exceeded the expenditure. In addition to its annual subscriptions, donations, and legacies, it possesses a funded capital amounting to about 60,000*l.* besides other available property. The articles manufactured by the females are, for sale, fine and coarse thread, window-sash-line, and clothes-line, fine basket-work, ladies' work-bags, and other ornamental works in knitting and netting; for consumption by the pupils, knitted stockings, household linen, and body linen. The occupations of the males are making shoes, hampers, wicker-baskets, cradles, rope-mats, fine mats, and rugs for hearths and carriages. These articles are sold at the institution, and it is said that the window-sash-line is highly approved of by builders of the first eminence. The sale of articles manufactured during the year 1832 produced 1345*l.* 'Some of the pupils are also instructed in music, and are qualified for the situation of an organist in any church or chapel, and they are also instructed in reading and writing.' (See *Account of the School for the Indigent Blind for the year* 1832.) The information which we have collected respecting this institution is chiefly derived from the publication above referred to. Little is said in that publication on the subject of intellectual education, and that little cannot be satisfactory to those who know how capable the blind are of a high degree of mental cultivation. The truth is that the institution is only a school of industry—that seven or eight hours daily are devoted to manual labour, and that the improvement of the mind is only attended to between working hours and at meals. The pupils are most carefully instructed in the principles of the Christian religion, and the chaplain to the institution attends three times at the least in every week for that purpose. An attempt has been made to teach reading and writing, but has been in a great degree abandoned, from the unwillingness of the pupils to receive instruction. In Gall's 'Origin and Progress of Literature for the Blind,' a work replete with curious investigation and interesting details, a report is given of the introduction of the arts of reading and writing into the London Asylum in June, 1831; from which report it appears that these arts were commenced under the most promising auspices, and it is certainly matter of regret that with ample funds, and every other auxiliary, these branches of instruction have not been continued. We extract from Mr. Gall's report some details showing the success and also the peculiar difficulties attending the experiment:—'The pupils in your institution may, for the purposes of this report, be divided into two classes; viz. those who could read before they lost their sight, and those who have been blind from their infancy, or who have never been acquainted with letters. In teaching those who had previously some knowledge of reading, the nature of the alphabet was first explained to them, and its near approximation in form and principle to the common Roman alphabet was pointed out. They were then made to feel the letters in their order, which they learned to distinguish and name in a very short time. The first pupil who was tried on the boys' side of the institution mastered the alphabet in fifteen minutes; and the first who was tried on the girls' side mastered it in ten. This last pupil during her first lesson, which did not exceed an hour and a quarter, learned both to read and to write. And so perfectly was this done that, on the same afternoon, she, without assistance, and while alone, wrote a letter to a young lady, the daughter of one of your committee, who had been present during her first lesson. This letter could be easily read by the writer herself, and was also very easily deciphered by the person to whom it was sent, although previously unacquainted with the alphabet.

'In teaching those who had previously been unacquainted with reading, the process was of course more tedious, and of a different kind. The difficulties which congregate around an adult in beginning to learn to read are more numerous than is generally supposed; and with the blind adult who has never *seen* the manner by which the art of reading is carried on by means of an alphabet, this must more especially be the case. One of your pupils (No. 101) thought that the word "w-i-l-l" as she felt it, should be pronounced "all;" that "v-e-r-y" should be "thy;" and that "a-n-y" should be "my". Another (No. 112) could not comprehend how the same letters should not always be the sign of the same word, in whatever order they were placed. When it was explained that the characters in the alphabet were but the signs of certain sounds, and that the letters b-a-d, which indicated the word "bad," and which she had just before read, would make quite another word, and indicate an entirely different sound if transposed into 'd-a-b,' she expressed some surprise, and endeavoured to comprehend it. When asked what sound she thought would be likest the rapid pronunciation of the letters d-a-b, she considered for a little, and then said that she thought it might be the word "stick." Being able to read all the letters, her hand was put for the first time upon the word "Adam," and she was asked what word she thought these letters would make? She accurately read and repeated all the letters in their order, and after considering a while said she thought they would make the word "book." The letters f-r-o-m she thought should be "the," and in many similar instances showed how erroneous were her previous ideas of the nature of the art of reading. This girl has, however, already acquired a pretty good idea of the powers of the letters, and reads her first book accurately and well.' (Gall's *Literature for the Blind*, pp. 125, 126.)

It is impossible not to regret that an experiment so full of interest, which could not have been carried forward without eliciting some new and curious results, should have been discontinued. The asylum of which we are now speaking is too confined in its operations, especially when we consider its wealth, its situation in the metropolis of our country, and its consequent means of diffusing knowledge among a solitary portion of our fellow-beings, of sending forth intelligence of its successful experience to other countries, and of becoming a guide and model for our own provincial institutions. The committee are empowered by their charter, as well as by the bye-laws of the charity, to 'form regulations for the internal management of the corporation, and for the instruction and moral discipline of the pupils,' and it is to be hoped that an enlightened and a liberal policy will cause them to introduce the branches of knowledge which have been successfully taught elsewhere into their institution generally, or that a school for the intellectual, moral, and religious improvement of the young blind will soon become a part of their establishment. The committee must receive credit for the good feeling which pervades the 'account' they give of their trust, from the tone of which it is by no means hopeless that some ameliorations of the nature suggested may be brought about. They say 'it is perhaps difficult to point out any two situations in life more opposite to each other than the condition of a blind person with his faculties benumbed by sloth, and his spirits depressed by the consciousness of his infirmity, and that of the same individual engaged in regular employment, and knowing that he contributes, by his daily occupation, to the comfort of the family of which he forms a part.' This contrast might be pursued, and the same person might be viewed uninstructed, devoid of intelligence, without a ray of the brighter kinds of knowledge enlightening his mind; shrouded not only in physical darkness, but also in ignorance of the ordinary laws of nature—the constitution of man—the manifold arts and inventions of civilized life: and again, he might be seen highly cultivated, in the possession of a certain amount of knowledge, exercising those mental powers which he enjoys in common with his fellow men, his well-stored mind visible in the animated expression of his features, and his voice acknowledging in eloquent language his participation in the lofty views of the philosopher and the Christian.

The blind are inquisitive on all subjects, and they will acquire knowledge if it be made accessible to them. In company with an educated blind person, it is common to forget his infirmity, so loth is he to allow conversation to relax, and so apposite are his allusions to subjects upon which it would at first seem that vision only could have afforded him information. In some cases affectation may lead to such display, but we can testify that such an affectation is not displeasing to the hearers, who cannot but consider by what a cost of attention and by what intricate mental operations such ideas have been acquired. But much must be directly communicated; and in the absence of books, lectures on scientific subjects, and constant intercourse with educated persons, will perhaps assist more than any other expedient in furnishing the inquiring blind man with the knowledge which he desires. 'He could never of himself have found out that there are such bodies as the sun, the moon, and stars; but he may be informed of all the noble discoveries of astronomers, about their motions, and the laws of nature by which they are regulated.' (Reid's *Inquiry*.)

The 'Hospital and School for the Indigent Blind' of Norwich was originally established in the year 1805, first for that city, and subsequently (as the condition of receiving a donation) for the county of Norfolk also; but its doors have been opened to other parts of the kingdom since the year 1819. The blind in the more elevated sphere of society appear not unfrequently to have been the first benefactors of their more indigent brethren. Mr. Tawell, a blind gentleman residing in Norwich, first called the attention of that city and its neighbourhood to the wants of the blind, and with a munificence commensurate with his zeal, he purchased 'a large and commodious house, with an adjoining garden of three acres in extent,' which he offered as the basis of the institution. A similar example of liberality has been manifested in the outset of an establishment for the blind at Boston, Massachusetts. [See BOSTON.] In May, 1833, Colonel Perkins gave his mansion, land, buildings, &c., valued at 30,000 dollars, as a permanent institution for the blind at Boston. To this gift a condition was wisely annexed, that 50,000 dollars should be raised as a fund for the institution before the 1st of June, in order that it might rest on a permanent foundation. Considerable exertions were forthwith made, especially by the ladies of Boston; the money was raised within the appointed time, the pupils were removed from their former domicile in the following December, and there appears to be every prospect that the institution, under Dr. Howe's care, will become highly useful.

The plan of the Norwich Asylum was to unite a school for the young with an hospital for the aged. It designed to admit the young pupils at the age of twelve years, and to keep them in the school till they should have attained a sufficient knowledge of some trade, as far as this could be accomplished within three years, but under no consideration to keep them longer than that time: some however have been kept longer. With respect to the aged, the rules express that none shall be admitted who have not attained the age of sixty-five years. It appears from the account of the institution published up to the end of 1833, that from the establishment of the institution to that date, 153 pupils had been admitted and 48 aged persons: 77 had been discharged qualified to work for themselves; 12 had proved incapable of instruction; 4 had left the asylum without leave, 13 had been discharged for irregularity, and 16 at their own request; 43 had died, and 36 remained on the books. The expenses seem to have averaged about 1100*l.* per annum, and the income about equalled the expenditure.

We looked earnestly through the account of the Norwich Asylum published in 1819, to find some rule relating to the intellectual education of the pupils, but none appears. In answer to our inquiries, we have to state that the sole occupation of the pupils is manual labour, with the following exceptions:—the pupils are taught psalmody; they sing in parts, and many of them play on instruments: they perform of an evening for the amusement of the patients, and also to visitors. Some of the blind form the choir of a neighbouring parish church. The secretary reads morning and evening prayers, and every evening reads aloud portions of the Bible and of history, for instance, the History of England. The principles of such an institution cannot be commended; they tend practically to inculcate that we live only to produce the means of supplying our animal wants. The manual labour schools of the United States may teach the directors of such establishments a very useful lesson. There, learning is a recreation which follows severer toils; and surely, in our own country, where manual labour is less valuable, a portion of time might be set apart for inculcating those duties which man, as a social being, has to perform, and for exercising and improving his rational powers.

The asylum for the blind at Glasgow was founded by John Leitch, Esq., who was himself partially blind; he bequeathed 5000*l.* towards opening and maintaining the institution. Nearly eighty blind persons have been admitted since it was opened in 1828 to the commencement of the present year (1835), and there are at present fifty individuals, of whom thirty are adults, enjoying the benefits of the asylum. It depends for support upon legacies, donations, and the sale of its manufactured productions. The treasurer of the asylum, Mr. Alston, has published a short statement of the employments of the pupils and the internal arrangements of the asylum, from which the condensed view here given is derived. The alphabet, spelling, and exercises on the string-alphabet are among the first auxiliaries used in the communication of knowledge. Oral instruction is also an important feature in this part of their education, which is modified under the various forms of lectures, dialogues, and catechetical examinations. The works performed by the pupils of this asylum are similar to those of others, but there appears to be a greater variety of articles. The superintendent purchases the raw material for the manufactures and keeps an account of the work each person performs, from which a statement of their earnings is made, and they are paid every Saturday. The male adults are allowed the same rate that other workmen have for the same kinds of work; if a man can make five or six shillings a week, he receives that sum for his weekly wages. At the end of every four weeks a statement of his earnings is made up from the work-book, and whatever he has earned over that sum is paid to him, and also an additional shilling a week as a premium upon his industry. If the amount which he ought to earn be not earned, or if the work be bad, no premium is allowed. At the monthly settlement some of them will have several shillings to receive in addition to their regular wages and premiums. Since the adoption of this regulation it has been found that a marked improvement has taken place both in the quantity and quality of work produced. A few elderly females are placed upon the same system; they work in the institution, but reside at their own homes. Females generally, above the age of eighteen years, are admitted as day-workers; they dine at the asylum and receive regular weekly wages; their apartments are separated from those of the males, and no intercourse is permitted. Boys and girls from ten to sixteen years of age reside in the house, and in addition to attendance on their classes, they are taught to perform light works suitable to their age, till old enough to be removed into the regular workshops. The girls and female adults are under the superintendence of a matron, who also has the management of the sales. Several of the blind men are employed in calling on the customers of the asylum to deliver goods and to solicit orders. It is common for adults who reside in distant parts of the city to go to and from their employment without a guide, and no accident has ever happened to any of them.

There are three asylums for the blind in Dublin. The oldest of them, Simpson's Hospital, was opened in 1781; it was founded and endowed by a merchant whose name it bears, who was himself subject to a disorder of the eyes, and was also a martyr to the gout. The design of the hospital is to provide an asylum for blind and gouty men, the preference being given to those of good moral character, who have formerly been in affluent circumstances. About fifty persons partake of the benefits of this charity. It was incorporated in 1799, and its income is about 3000*l.* per annum.

The Richmond National Institution for the Indigent Industrious Blind is supported by subscriptions and donations; it was opened in 1809; the inmates, who are all indigent, are instructed in the trades ordinarily taught to the blind. At present the institution contains forty men and youths, who are lodged, maintained, and clothed there.

The Molineux Asylum is supported by subscriptions, by the profits of a chapel, and by charity sermons; it is solely for the reception of females, who are admitted at all ages. Those above fifty have here a permanent abode. The younger section of the establishment are lodged, clothed, and fed; and for a certain number of years receive instruction in those employments by which it is intended that they shall earn their living. This asylum was opened in 1815, in the mansion of Sir Charles Molineux, Bart. This family has been among its most liberal benefactors.

In addition to the institutions which we have mentioned, two others are in the course of being established in the north of England. One of these is the Yorkshire Asylum for the Blind, which opened in October last (1835), at York. At the first election, candidates between the ages of twelve and fifteen only were admitted: and it is intended that the charity shall be confined as much as possible to young persons. Its design is 'not so much to provide maintenance for the blind, as to give them such instruction as may help them to gain a livelihood for themselves, attention being at the same time paid to their moral and religious instruction: their friends or parishes therefore contribute towards their support whilst they are in the institution.' Those persons only are admissible who have lost their sight to such a degree as to be able at most only to distinguish light from darkness—those who have a capacity for instruction—those who are free from any dangerous or communicable disease—and those who are free from vicious habits.

The Rev. W. H. Vernon Harcourt, canon residentiary of York, is actively engaged in forwarding the objects of this institution, which is partly supported by donations and subscriptions, and partly by payments on behalf of the pupils. The Rev. William Taylor, mentioned as the author of the tangible *Euclid*, is its superintendent, and persons of experience from the Edinburgh Asylum fill the situations of instructor and matron.

The second new establishment in progress for the blind is at Manchester. An endowment of 20,000*l.* was left in the year 1810, for the purpose of supporting an asylum for the blind, at or in Manchester, by the will of Thomas Henshaw, Esq., formerly of Oldham. Nearly 10,000*l.* have been subscribed by the inhabitants of Manchester for the purchase of land, and for erecting a suitable building, as no part of Mr. Henshaw's endowment can be appropriated to either of these purposes. An eligible plot of land in the vicinity of the Botanic Garden has been taken by a committee formed for effecting the objects proposed, and there is every prospect of an institution rising up worthy of the noble endowment of its first benefactor. At present nothing is known upon the views of the committee as to what kind of education the blind should receive. Various opinions are held by the subscribers to the building-fund; some think a mere asylum all that is necessary; others, that trades should be taught, as at Liverpool; and others again, that their education should comprehend, as far as possible, all that is expressed in that term. The last is the view which we have taken of the instruction of the blind throughout this article.

In addition to the systems of physical education which are followed in the asylums of which we have spoken, the following general observations on the treatment of the blind from Dr. Blacklock, in the 'Encyclopædia Britannica,' are so just, that they cannot fail to recommend themselves to all who are interested in the practical application of plans for their benefit. 'From the original dawning of reason and spirit, the parents and tutors of the blind ought to inculcate this maxim,—that it is their indispensable duty to excel, and that it is absolutely in their power to attain a high degree of eminence. To impress this notion on their minds, the first objects presented to their observation, and the first methods of improvement applied to their understanding, ought to be capable of being comprehended without difficulty by those internal powers and external senses which they possess. Not that improvement should be rendered quite easy to them, if such a plan were possible; for all difficulties which are not really or apparently insuperable heighten the charms and enhance the value of those acquisitions which they seem to retard. But care should be taken that these difficulties be not magnified or exaggerated by imagination; since the blind have naturally a painful sense of their own incapacity, and consequently a strong propensity to despondency continually working in their minds.

'For this reason parents and relations ought never to be too ready in offering their assistance to the blind in any office which they can perform, or in any acquisition which they can make for themselves, whether they are prompted by amusement or necessity. Let a blind boy be permitted to walk through the neighbourhood without a guide, not only though he should run some hazard, but even though he should suffer some pain. If he have a mechanical turn, let him not be denied the use of edge-tools; for it is better that he should lose a little blood, or even break a bone, than be perpetually confined to the same place, and thus debilitated in his frame, and depressed in his mind. Such a being can have no employment but that of feeling his own weakness, and becoming his own tormentor; or perhaps transferring to others a portion of the malignity and peevishness engendered by the natural, adventitious, or imaginary evils which he feels. Scars, fractures, and dislocations in his body are trivial misfortunes compared with imbecility, timidity, or fretfulness of mind. Besides the pernicious effects of inactivity in relaxing the nerves, and consequently in depressing the spirits, nothing can be more productive of discontent, envy, jealousy, and every mean malignant passion, than a painful impression of dependence on others, and of our insufficiency for our own happiness. This impression, which even in its most improved state will be but too deeply felt by every blind man, is redoubled by that utter incapacity of action superinduced by the officious humanity of those who would anticipate or supply all his wants, prevent all his motions, and do or procure everything for him without his own interposition. It is the course of nature that blind people, as well as others, should survive their parents; and it may likewise happen to them to survive those who by the ties of blood and nature are more immediately interested in their happiness. But when they come to be dependent on the world, such exigencies as they themselves cannot meet will be but coldly and languidly supplied by strangers. If their expectations be high, their disappointments will be the more sensible: their desires will often be resisted, seldom fully gratified; and even when their requests are granted, the concession will sometimes be so ungraceful as to deprive it of the character of kindness. For these reasons, we repeat, that in the training of a blind man it is infinitely better to direct than to supersede his own exertions. From the time he can move and feel, let him be taught to supply his own wants; to dress and to feed himself; to run from place to place, either for exercise or in pursuit of his own amusements or avocations.

'In these excursions, however, it will be proper for the parent or tutor to superintend his motions at a distance, without seeming to watch over him. A vigilance too apparent may defeat its own object, and create in a mind naturally jealous a suspicion of its originating in some interested motive. But, on the other hand, when dangers are obvious and great, those who are intrusted with the care of the blind will find it neither necessary nor expedient to make their vigilance a secret. They ought then to acquaint their pupil that they are present with him, and to interpose for his preservation whenever his temerity renders it necessary. But objects of a nature less noxious, which may give him some pain without any permanent injury or mutilation, may by design be thrown in his way, provided however that the design be industriously concealed, for his own experience of their bad effects will prove a much more eloquent and sensible caution than the abstract and frigid counsels of any monitor whatever.

'When the season of childish amusement has expired, and the impetuosity of animal spirits has abated, the tutor will probably observe, in the whole demeanour of his pupil, a more sensible degree of timidity and precaution, and his activity will then require to be stimulated rather than restrained. In this crisis exercise will be found requisite to preserve health and facilitate the vital functions, as well as for the mere purpose of recreation; and of all kinds of exercise, riding on horseback will be found by far the most eligible and advantageous. On such occasions, however, care must be taken that the horses employed be neither capricious or unmanageable; for, on the docility of the animal which he rides not only the safety but the confidence of the blind will entirely depend. In these expeditions, whether long or short, his companion or attendant ought to be constantly with him; and the horse should be taught either to follow its guide, or be conducted by a leading rein. Next to this mode of exercise is walking. If the constitution be tolerably robust, let him be taught to encounter every vicissitude of weather which the human constitution can endure with impunity. And when the cold is so intense, or the elements so tempestuous, as to render air and exercise abroad impracticable, there are methods of exercise within doors, which, though not equally salutary, are still highly eligible. The dumb-bells, the bath-chair, or spring-board, and the common swing, have been particularly recommended for this purpose; and as each affords an agreeable exercitation, any of them may be had recourse to at pleasure.'

The number of blind men who have become distinguished is large. The histories of many of them will be found under their names in this work. The table given opposite has been drawn from various sources, but chiefly from the *Essay* of Dr. Guillié, on the *Instruction of the Blind*; from the *Biography of the Blind*, a 12mo. volume of 300 pages, by James Wilson, himself a living instance of the intellectual efforts of which the blind are capable; and from the first volume of the *Pursuit of Knowledge under Difficulties* in the Library of Entertaining Knowledge. In addition to those included in our table, many others might have been named of minor celebrity, who filled a sphere of usefulness in their day, and many are still living in this and in other countries, whose perseverance and success may teach a useful lesson to some future age. We cannot forbear to name James Holman, who became blind when a young man, and whose published travels round the world have excited very general curiosity and interest. Nor should we omit to mention Alexander Rodenbach, 'a member of the Belgian Chamber of Deputies, and one of the most conspicuous actors in the late revolution, who forms one of the principal supports of the democratic party, and who 'often makes the Chamber ring with his original and eloquent speeches.'

The acquirements and the labours of the individuals included in this table would alone be sufficient to give them celebrity even had they laboured under no physical defect. The knowledge of what they accomplished may, in some measure, enable the teacher to ascertain what are fit studies for the blind, and by showing him what has been done, to encourage him in his difficult undertaking. The instruction of persons who are under so much greater disadvantages than ordinary pupils requires more than ordinary patience and encouragement. The ingenuity which a teacher must exercise is almost beyond calculation; he requires also knowledge of a high degree, especially a knowledge of human nature under this peculiar affliction. In every country there ought to be at least one normal school, where teachers may be trained for the instruction of the blind. A simple way of effecting such a purpose would be for the government to allow to one establishment, which shall first be ascertained to be a superior one in its management and results, such an annual grant of money as shall enable it to retain several young men as assistant-teachers, who shall be ready to supply vacancies which occur, and to take charge of newly-established institutions. This kind of assistance would, perhaps, be the most valuable encouragement which a government could afford. It

Name.	Country.	Born.	Lived.	Died.	When Blind.	Art or Science.	Works written during Blindness.
Diodotus (lived in the century preceding the Christian æra)	Asia				Became blind	Philosophy, geom. and music.	
Eusebius	Asia		315	340	At five years	Philosophy and divinity.	
Didymus	Alexandria	313		398	At five years	Rhetoric, music, and theology.	Treatise on the Holy Spirit.
Aufidius Bassus	Rome				In youth	Philosophy and geometry	A Greek History.
Achmed Ben Soliman	Arabia	973		1059	At three years	Poetry.	
Henry the Minstrel	Scotland	1361			Born blind	Poetry	Life of Wallace.
Sir John Gower	London			1402		Poetry and history	Confessio Amantis, &c.
Nicaise of Malines	Netherlands			1492	At three years	Law and divinity.	
Charles Ferdinand	Bruges, Netherlands				In early youth	Music, oratory, literature.	
Peter Pontanus	Bruges, ditto		15—		At three years	Philosophy and literature	On Rhetoric, &c.
Margaret of Ravenna	Russy, near Ravenna			1505	At three months	Theology and morals.	
James Schegkius	Thorndorf, Wurtemberg			1587	While young	Philosophy and medicine	Several Treatises.
John Fernand	Belgium				Born blind	Poetry, philosophy, and music.	
Pedianus Asconius					Late in life	History	Treatises on Grammar
Uldaric Schomberg	Germany		16—		At three years old	Literature.	
Herman Torrentius	Zwoll, Unit. Provinces			1520		Literature	Historical and Poetical Dictionary.
John Paul Lomazzo*	Milan	1538			At 17 years	Painting and literature	Idea del tempio della pittura.
Franciscus Salinas†	Burgos, Old Castile	1513		1590	At eight years	Greek lan., mathemat., & mus.	De Musicâ.
Count de Pagan‡	Marseilles	1604			In middle life	Mathemat., mechanics, & astr.	Geom. Theorems; on Fortifications; Theory of Planets, &c.
Francois Malavae	Marseilles	1627		1719	At nine months	Mystics	Spiritual Poetry, &c.
Prosper Fagnani	Rome		1661			Law	Commentary on Laws, 3 vols. folio.
Claude Comiers	Embrun, Dauphiny			1693		Medicine, mathemat., physics.	On the Art of prolonging Life.
Bourchenu de Valbonnais	Grenoble	1651			In youth	History	History of Dauphiny, &c.
Nicholas Sanderson	Yorkshire	1682		1739	At 12 months old	Mathematics, astronomy, &c.	Treatise of Algebra.
Dr. Moyes	Kirkaldy, Scotl.	1750		1807	At three years	Music, math., nat. philosophy.	
Dr. Blacklock	Annan, ditto	1721		1791	At six months	Poetry, divinity, music, &c.	Poems, Sermons, &c.
M. Pfeffel	Colmar	1736		1809	Very young	Poetry	Fables, 6 vols. 8vo.
M. Weissembourg	Mannheim, Ger.				At seven years	Geography	Inventions for the Blind.
M. Huber	Geneva	1750	1784		At 17 years	Naturalist	On Bees and Ants; on Education.
John Gonelli	Cambassi, Tusc.				At twenty do.	Sculptor.	
John Gambasius	Volterra				At twenty do.	Sculptor.	
Mademoiselle Paradis	Vienna				At two do.	Music (comp. and perform.)	
Martin Chatelain	Warwick	16 –	1784		Born blind	Mechanics and music.	
Francis Potter	London			1678	Became blind	Mechan., theo., and painting.	Explanation of the No. 666.
——— Caraulhi	Nantes			1789	Born blind	Music.	
Nicholas Bacon, LL.D.	London	1510		1579	At nine years	Law.	
Anna Williams	Wales	1706		1783	At 34 years	Poetry	Miscellanies, in Prose and Verse.
Leonard Euler	Basle, Switzerld.	1707		1783	At 59 years	Mathematics and astronomy	Elements of Algebra, and various other scientific works.
Rev. John Troughton	Coventry	1637		1681	At four years	Theology	Various Nonconformist works.
Caspar Crumbhorn	Silesia			1621	At three years	Music (comp. and perform.)	
Martini Pesenti	Venice				Born blind	Ditto ditto.	
Denis Hampson (Bard)	Ireland	1698		1808	At three years	Music (performer.)	
Mademoiselle Solignac	Zaintonge				At two years	Music, writing, &c.	
John Stanley	London	1713		1786	At two years	Music (comp. and perform.)	Oratorios (Jephtha, Zimri, &c.)
—— Parry (Welsh Harper)	Wales				In infancy	Ditto ditto.	
Edward Rushton	Liverpool	1756		1814	At 19 years	Poetry, politics	Poems, Letters to Washington, &c.
John Metcalf (Blind Jack)	Knaresborough	1717		1802	At six years	Road-surveyor, contractor, &c.	
John Gough	Kendal	1757		1825	At three years	Botany, natural philosophy	Fourteen Communications to Manchester Society; Thirty six to Nicholson's Journal.
John Kay	Glasgow	1777		1809	At ten years	Mechanics.	
—— Nelson	New York				At twenty	Greek and Latin classics.	
John Milton	London	1608		1674	At forty four	Poetry	Paradise Lost, &c.
Sir John Fielding	Westminster			1780	From youth	Police magistrate	Universal Mentor, &c.
David M'Beath	Dalkeith	1792		1834	At an early age	*Music, mathematics, &c.*	*Inventions for the Blind.*

* Lomazzo had studied literature and painting previous to becoming blind; he wrote on Painting after he became blind.

† Some authorities state that Salinas was blind from birth.

‡ Count de Pagan published his works after he became blind.

would thus ensure the training of persons to continue and perfect an art which has been kept in a state of infancy from the want of such a provision.

The addition of deafness to blindness seems almost to shut out a human being from the external world. It is difficult to conceive how the mind of a person who is deaf, dumb, and blind can be occupied—much more difficult to decide how it can be improved and educated. The case of James Mitchell has been made known to the public by Dugald Stewart, Mr. Wardrop, and Dr. Spurzheim. He received no education, except that which was forced upon him; his friends made no progress in communicating with him, except such as related to his daily exercises and wants. The intercourse they mutually held was by natural signs, addressed to his sense of feeling. When hungry he expressed himself by carrying his hand towards his mouth, and pointed to the cupboard where the eatables were kept. If his sister wished to express satisfaction, she tapped him gently; if displeasure, she gave him a quick slap. If wanted to go to bed he inclined his head sidewards. He readily interpreted signs, and so evinced the activity of his powers. Several cases of similar deprivations are recorded; perhaps the most interesting, and the one least known in England, is that of Julia Brace, the deaf, dumb, and blind American girl, who resides in the institution for the deaf and dumb at Hartford, Connecticut. Julia Brace was seized with typhus fever at four years of age: during the first week of her illness she became blind and deaf. She retained her speech for about a year, frequently repeating her letters and spelling the names of her acquaintance, but she gradually lost it, and seems now condemned to perpetual silence. For three years she continued to utter a few words: one of the last was 'mother.' At first she was unconscious of her misfortune, and imagined that *a long night* had come upon the world. At length in passing a window she felt the sun shining warm upon her hand, and she made signs indicating that she was aware of it. She was governed by her mother, by means similar to those employed in the case of Mitchell: at first she was exceedingly irritable; but she at length became habitually mild, obedient, and affectionate. At nine years of age she was taught to sew, and since that time to knit. Julia Brace, who is now nearly thirty years of age, is supported in the Hartford Asylum in part by the contributions of visitors, and in part by her own labours in sewing and knitting. A language of palpable signs was early established as a means of communication with her friends; this has been much improved by her intercourse with the deaf and dumb, and is now sufficient for all ordinary purposes. It is obvious that her only means of perceiving external objects are the smell, the taste, and the touch. The touch is her chief reliance, and enables her to distinguish every object with which she has been familiar, sometimes by the aid of her lips and tongue. But her smell also is surprisingly acute, and often enables her to ascertain facts which are beyond the reach of other persons. Her countenance as she sits at work exhibits the strongest evidence of an active mind and a feeling heart, and thoughts and feelings seem to flit across it, like the clouds in a summer sky. A shade of pensiveness will be followed by a cloud of anxiety or gloom; a peaceful look will perhaps succeed; and not unfrequently a smile lights up her countenance, which seems to make one forget her misfortunes. But no one yet has penetrated the darkness of her prison-house, or been able to find an avenue for intellectual or moral light.

These particulars are derived from two interesting articles in the *American Annals of Education.* Captain Basil Hall, who visited the Hartford Asylum, also gives some interesting particulars respecting Julia Brace in his *Travels in North America.*

Of the statistics of the blind we have no very accurate information. Their proportion to the whole population varies from local causes: in Egypt 1 in 300 are supposed to be blind; in England not more than 1 in 1000, but this gives a large aggregate. As improvable beings they call for education; as labouring under a serious organic defect they demand our sympathy and benevolence. It is our duty to support institutions for their education, and to encourage those inventions which have been found in any way adequate to their wants. The important work of James Gall on the *Origin and Progress of Literature for the Blind* supplies a vast variety of useful information on the subject.

BLINDAGE (called also BLIND), is a military building, consisting usually of stout timbers, to secure troops, stores, or artillery.

In fortresses, when regular casemates have not been constructed for the protection of the ammunition and provisions, or of the soldiers, while not employed in active duty, covered buildings of a temporary nature are formed for those purposes at, or previously to, the commencement of a siege. The simplest are such as are made against the side of some strong wall within the place, or, which is preferable against the revetment of the counterscarp, in a dry ditch, on any of the fronts not exposed to the fire of the enemy. These inclined blindages consist, when timber is plentiful, of thick beams placed close together, and leaning against the wall so as to make with it an angle of 45 degrees, one extremity of each resting on a sleeper laid in the ground: in other cases the beams are placed at intervals from each other; over them are laid horizontal joists close together, and the whole is covered to the required thickness with fascines and sods when they can be procured; the entrance is at one extremity of the building. This kind of blindage is also constructed to cover a man while employed in piercing the escarp wall of a rampart, in order to form a breach in it by the explosion of a mine.

A blindage is sometimes formed independently of any wall, by planting the timbers in the ground in inclined positions so that their upper extremities meet together in a ridge, by which means the building resembles the roof of a house, and the whole is covered with fascines and sods. But generally an area is inclosed by a wall made of strong palisades planted vertically in the ground, the roof being formed of timbers disposed horizontally and close together, above which comes the bed of fascines and earth. For a small magazine the inclosing wall may consist merely of gabions filled with earth; the area being covered as before.

A blindage is said to be bomb-proof, when, from the thickness of its roof, it is capable of resisting the shock of loaded shells; and splinter-proof when merely capable of securing persons within it against the fragments resulting from the explosion of such shells.

The French give the name of blindage to any building already existing in a fortress, when a shell-proof covering has been made to it in place of its proper roof; this cover is obtained by placing great girders over the interior, and overlaying them with joists and earth. It is recommended that the walls, when not sufficiently strong, should be cut down to a convenient height, and covered as before. On the exterior of the building leaning blindages may be formed as above described, and sometimes the whole of the exterior walls is protected in the same manner except at the intended entrances, which are generally opposite to the piers between the doors and windows, where some of the inclined timbers are omitted: but occasionally the walls and roof are merely strengthened and supported by shoars or inclined props firmly fixed below in the ground, and above resting against the extremities of the girders. For these kinds of blindages such buildings should be selected as have their lengths in the probable direction of the enemy's fire, to avoid their being too much exposed.

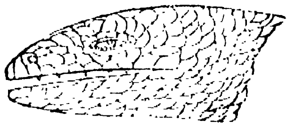
To secure some of the artillery on the ramparts of a fortress, shell-proof blindages are formed, by planting in the earth strong palisades vertically on each side of the gun, from the interior slope of the parapet to the extent of about eighteen feet from thence, across the terreplein or upper surface of the rampart; and a roof is made with timbers, which also cover the embrasure as far as six feet from its neck, or interior extremity. These blindages are open towards the rear, and the guns fire through the embrasures as usual. It has also been recommended to form the blindage in the thickness of the parapet itself, the roof being well covered with timbers, fascines, and earth; the interior side should be open, but the exterior may be closed by a number of stout timbers placed horizontally, so as to make a wall four feet thick, through which the embrasures may be cut like the portholes of a ship.

In the attack of fortresses, when the trenches of the besiegers become subject to a plunging fire from the place, they are protected by blindages; these are formed by fixing rectangular frames of timber vertically along the two sides of the trench, and placing similar frames across the trench so as to rest on the upper extremities of the former; the roof frames carry a layer of fascines, which is covered with earth or raw hides.

Blinded trenches of this kind were formerly much used by the besiegers to protect their descent into the ditches of fortified towns; one of this kind was executed by the French for that purpose when they besieged Danzig in 1813.

BLINDNESS. [See Eye.]

BLIND-WORM (zoology), the English name for a species of the third subgenus of the family of *Anguidæ*, *les Orvets* of the French, and the genus *Anguis* of Linnæus. This family have a bony head, their teeth and tongue resemble those of the lizards distinguished by the name of *Seps*, and they have three eyelids: they are, in short, as Cuvier observes, so to speak, Seps-lizards without feet. [See Seps.]



[Head of Blind-worm.]

Before we enter into a description of the reptile whose name stands at the head of this article, it may not be uninteresting to trace the steps by which nature, leaving the form of the lizards, arrives at that of the snakes. Proceeding in the lizards from *Seps* to *Bipes*, from *Bipes* to *Chalcides*, and from *Chalcides* to *Chirotes*, forms almost insensibly becoming more and more serpentine, she arrives at the *Anguidæ* or *Snakes*, which may be said to form the connecting link between the lizards and the true serpents. [See Serpents.] These *Anguidæ* are characterized externally by imbricated scales which cover them entirely. There are, according to Cuvier, four subgenera; in the three first of which are to be found, under the skin, the rudiments of some of the bones of the anterior extremities and of the pelvis. In the last subgenus there is no vestige of such bones, nor of a sternum (breast-bone).

We will give a slight sketch of these subgenera, and so endeavour to convey to the reader the place which the blind-worm is supposed to occupy in this graduated scale. In the first of these subgenera, *Pseudopus* of Merrem (the *Scheltopusiks*, see Scheltopusik), the tympanum or drum of the ear is visible externally; on each side of the vent there is a small prominence, which is the rudiment of a femur (thigh-bone), and this bone is attached to a true pelvis hidden beneath the skin. The anterior extremities are scarcely marked by an external fold hard to be seen, and there is no humerus (arm-bone) within. One of the lungs is one-fourth part less than the other.

The second subgenus, *Ophisaurus* (snake-lizard) of Daudin, has many points of resemblance with the Scheltopusiks, but there is no appearance of posterior extremities or limbs. The tympanum, however, is still visible, and the scales leave a fold on each side of the trunk. The small lung is about one-third of the size of the large one. [See Ophisaurus.]

In the third subgenus (*Anguis* of Cuvier), under which the blind-worm is arranged, not only is there no appearance of any limbs externally, but even the tympanum is hidden under the skin; the maxillary teeth are compressed and hooked, but there are no palate teeth. The body is enveloped in small imbricated scales, and there is no fold at the side. One of the lungs is less than the other by one-half. Such are the characters of the *Orvets* properly so called.

These three subgenera have still an imperfect pelvis*, a small sternum, or breast-bone, a shoulder-blade and a clavicle (collar-bone) hidden under the skin.

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* Meckel is of opinion that the imperfect pelvis which Cuvier attributes to *Anguis fragilis* is a posterior extremity and not a rudimentary pelvis; and Dr. Mayer, who saw the preparation in the Museum at Paris, evidently agrees with Meckel. Indeed Mayer makes *Anguis* the first genus of his Cryptopoda, a family of Ophidians having the rudiments of a foot concealed under the skin.

But these bones are absent in the fourth subgenus, *Acontias* (Javelin-Snake) of Cuvier: for though this subgenus resembles the others in the structure of the head and of the eyelids, there is neither breast-bone, nor shoulder-bone, nor pelvis, but the anterior ribs are united one to the other beneath the trunk by cartilaginous prolongations. Cuvier states that he observed one moderate-sized lung and one very small one. The teeth are small and conical, and Cuvier thinks that he has perceived some on the palate. [See JAVELIN-SNAKE.]

To return to our blind-worm, which belongs to the third of these subgenera, and is common throughout Europe. Its length varies from about eleven inches to somewhat more than a foot, and instances have been given of its attaining more than double that length. The eyes are small (whence one of its names), and the irides are red. The head is small, the teeth are minute and numerous, the neck is slender, and thence the body enlarges, continuing of equal bulk to the tip of the tail, which ends bluntly, and is as long as the trunk, or body part. The scales are very smooth, shining, of a silvered yellow on the upper parts, and dusky beneath: the sides are of a somewhat reddish cast. Down the back extend three black lines, which change with age into different series of black specks, and at length disappear. The general colour of the back may be described as cinereous, with somewhat of a metallic lustre, and marked with very fine lines of minute black specks. The dusky belly and the reddish sides are marked like the back.

The blind-worm feeds on earth-worms, insects, &c.; and the slowness of its motion has obtained for it another of its names. Though perfectly innocuous, it has the character of possessing the most deadly venom, and is persecuted accordingly. Pennant quotes Dr. Borlase as assisting this idle and groundless notion, by mentioning a variety of this serpent with a pointed tail, and adding, that he had been informed that a man lost his life by the bite of one in Oxfordshire. Now, if the serpent that bit the man in Oxfordshire had a pointed tail, it could not have been a blind-worm; and if the story of the death be true, he most probably lost his life by the bite of a black or dusky viper, as Pennant suggests. [See VIPER.] The country people still hold this harmless reptile in utter abhorrence, and wage an exterminating war against it: but the reader may be assured that the 'blind-worm's sting' exists only in imagination. The animal is very brittle. Laurenti and others assert that, when captured, it throws itself into such rigidity that it sometimes breaks in two. A smart blow with a switch divides it: and from this fragility Linnæus gave it the specific name which it still retains. Cuvier is of opinion that the *Anguis eryx* of Linnæus is only a young blind-worm, which has the dorsal lines well marked, and that the *Anguis clivicus*, which Daudin makes an *Eryx*, is nothing more than an old blind-worm with a truncated tail. The *Blind-worm* or *Slow-worm* of the old English authors, is the *Long Cripple* of the Cornish, according to Borlase, *Ormsla* and *Koppar-Orm* of the Fauna Suecica, *L'Orvet* of Lacépède, *Blindtschleiche* of the Germans, *Anguis fragilis* of Linnæus. It brings forth its young alive, and it is said twice a year, in the seasons of spring and autumn.

The author of the article on the Ophidians in Griffith's Cuvier, where much valuable information is to be found, says that 'by the aid of its muzzle it excavates holes in the earth three or four feet in depth, and conduits describing different circuits and having several issues.' The same author mentions its concealment of itself during rain and the season of frost, and says that it does not cast its old skin until towards the month of July. The general opinion is (and we think it well founded) that the blind-worm is the *Cæcilia* of the Latins, and the τύφλωψ and τυφλίνος of the antient Greeks, names given in allusion to its supposed blindness, and that it was sometimes called κωφίας on account of its assumed deafness. Belon considers it to be the serpent called *Tephloti*, *Tephliti*, and *Tephlini* by the modern Greeks. Columella (*de Re Rusticâ*, 6. c. 17), following the opinion of its deleterious nature, says that its poison is fatal to oxen, and that the cure is the flesh of storks, because they devour this serpent. Upon the principle, we suppose, of counteracting one poison by the application of another, a Theriaca, or poison-antidote, made from the harmless blind-worms (*cæciliis*) and the Theriacal water was used as a sudorific against the pestilence. But enough of these absurdities.

BLISTER, a term used to express a bladder or vesicle raised upon the skin by the application of some external irritating substance, and also to denote the external application itself by which this effect is produced. The term *vesicatory* is also frequently given to the external application. The substance usually employed as a vesicatory is the powder of the Spanish fly. [See CANTHARIDES.] The powder of the cantharides is mixed with lard and wax, so as to produce a plaster of tolerably firm consistence, which is spread on leather and applied to the part for the space generally of from ten to twelve hours. The first effect of the application of the blister-plaster to the external skin is to produce a sense of tingling and heat; this is followed by redness, commonly attended with pain, and subsequently there takes place an elevation of the cuticle into a vesicle or bladder, which contains a fluid resembling the serum of the blood. On the evacuation of this fluid the redness continues for some time; the serum gradually thickens, and at last is changed into a whitish curdly substance under which new cuticle is formed, though occasionally the serum is converted into proper purulent matter, the blistered part successively contracting, until the whole wound is healed.

The effect of the application of a blister is the production of a true inflammation over the whole surface of the skin with which the plaster is in contact. The effusion of a serous fluid from the excited capillary vessels of the skin is one of the ordinary phenomena of inflammation. The formation of the bladder or vesicle is occasioned simply by the elevation of the cuticle from the true skin, by the fluid poured out from the cutaneous capillary vessels. The inflammation induced by the blister is the effect of a powerful stimulus applied to the cutaneous blood-vessels and nerves.

The extent of the inflammation is usually confined to the surface in actual contact with the blister; it is comparatively rare that any degree of irritation is communicated to the general system: and yet the relief afforded is often so great, that the effect appears disproportioned to the cause, a small external inflammation mitigating or removing an extensive and severe internal inflammation. Much discussion has taken place as to the principle on which this relief is afforded, and the real mode in which the blister produces the benefit observed to result from it is not clearly understood. It is certain that the chief benefit results in the state of what is termed local inflammation, that is, when the inflammatory action is confined to a single organ or to a part of an organ. In order to understand the true nature of the change effected in the part relieved, it is obviously necessary to understand the true nature of inflammation. [See INFLAMMATION.] It may be here stated that in inflammation artificially induced with a view of observing the phenomena that take place in this process, the blood-vessels of the part inflamed are seen to enlarge and to become preternaturally distended with blood, while the motion of the blood in such vessels is either very much retarded or ceases altogether. The knowledge of this fact enables us to understand, in some measure, the action of a blister. The application of a powerful stimulus, such as that caused by the Spanish fly, in the neighbourhood of vessels relaxed and over-distended with blood, relieves such vessels by depriving them of a portion of their blood, and by consequently removing the state of over-distention. For the stimulus applied to the skin determines a large quantity of blood to the cutaneous vessels under the influence of the vesicatory: this blood is derived from the blood-vessels of the parts in the immediate neighbourhood of the vesicated skin—from the blood-vessels of the inflamed part among the rest; and the blood-vessels of the inflamed part being relieved from the preternatural quantity of blood that distended them, return to their healthy action.

Another reason has also been assigned for the relief afforded by the application of blisters. It is observed that when a morbid action exists in any part of the body, it may sometimes be removed by exciting a morbid action of a different kind in the same or in a neighbouring part. It is assumed that two morbid actions of different kinds cannot go on in the same part at the same time; hence the surgeon and physician, when they observe diseased action going on in a particular part of the body, induce, as near to that part as possible, another action of a different kind, frequently with the effect of lessening or altogether stopping the former morbid action. Now one of the instruments most commonly employed to excite this new action is the blister, and the excitement of such action, on the principle just stated, is conceived to be one mode in which the blister, as a general remedy, proves beneficial.

But whatever be their mode of operation, the fact is certain that blisters often prove more extensively beneficial than could have been anticipated from the limited surface on which they act, and from the very slight discharge they induce. Though, as already stated, they are most beneficial when the inflammation is seated in a particular organ or in part of an organ, yet they are by no means without advantage in cases in which the system is generally and deeply involved; but then benefit can only be obtained from them after bleeding, purging, and other evacuants have lessened or subdued the general action of the system. In this case they often complete and render permanent the benefit derived from the preceding remedies.

For the reason already assigned, they are most commonly employed (after remedies that act powerfully on the general system) in pneumonia (inflammation of the lung); in gastritis (inflammation of the stomach); in hepatitis (inflammation of the liver); in phrenitis (inflammation of the brain), and so on: but there are diseases of the nervous system in which they are decidedly useful, as in spasmodic affections attended with pain but without inflammation; in the paroxysms of angina pectoris and of spasmodic asthma; in epilepsy, catalepsy, hysteria, paralysis, &c.

Benefit is sometimes derived from the application of blisters through their immediate and direct action as stimulants, chiefly in full habits, in which languor is the consequence of over-distention. In these cases they excite the whole system, and produce an exhilarating effect. A gentleman once highly distinguished at the bar, and of brilliant convivial powers, always applied a blister when he wished to shine in either sphere, and the effect was produced as soon as the warmth in the part began. Many persons, even though they feel acutely the pain produced by blisters, declare that the relief from the previous languor counterbalances all their sufferings.

The application of a blister is sometimes successfully employed as a means of directly lessening pain. The excitement of one pain diminishes another: hence the relief afforded in tooth-ache and other painful affections. Although in general blisters relieve more pain than they give, yet in some irritable skins and in some irritable states of the system, they produce occasionally extreme excitement and suffering. By the previous employment of the appropriate remedies for soothing the irritable state of the system, the beneficial effect of blisters may be obtained even in constitutions thus predisposed to irritation from the operation of this remedy, which constantly produces good or bad effects just as its application is well or ill timed. One painful affection occasionally induced (strangury) is effectually relieved by an anodyne injection thrown into the rectum, consisting of four or six ounces of thin tepid gruel, with thirty or forty drops of laudanum.

BLISTER-BEETLE. [See CANTHARIS.]

BLOCK (German, *Blöcke;* Dutch, *Blokken;* Swedish, *Skepps-block;* French, *Poulie;* Italian, *Bozelli;* Spanish, *Motones;* Portuguese, *Moutões;* Russ, *Bloki*), an instrument generally made of wood, but sometimes of iron. It is chiefly employed in the rigging of ships to give facility to the raising or lowering of the masts, yards, and sails, and for such other purposes as require and admit of the application of the pulley—a block, as used on board of ships, being simply a pulley in the greater part of its modifications. One description of blocks, to which the name of dead-eyes has been given, is not a pulley, being unprovided with sheaves. These dead-eyes are used for setting up and fastening the shrouds and other standing rigging of the ship, while sheaved blocks are used for the running rigging. The more usual form of blocks of both descriptions is that of an oval spheroid, flattened at opposite sides. Dead-eyes are made out of one piece of wood, pierced with the requisite number of holes, through which the standing rigging is passed; and single-sheaved blocks are made up of three distinct parts, viz., the shell, the sheave, and the pin which serves as an axis round which the sheave revolves. Some blocks are made with two, and others with three, and even four sheaves, which all revolve on the same pin or axis, and consequently parallel to each other, in separate chambers formed for that purpose in the shell of the block.

The construction of blocks would seem to be a very simple operation, such as any man accustomed to work in wood could perform with facility and accuracy; but this in practice is not found to be the case, as the parts must be fashioned and fitted together with the greatest possible accuracy, in order to insure their easy working when put together—a circumstance of considerable importance in the management of a ship. For this reason, block-making has long formed a substantive branch of manufacture, and is carried on either by itself, or in conjunction only with mast-making.

The vast number of blocks constantly required for the use of the English navy and the mercantile marine of this country may be understood from the fact, that upwards of 1400 blocks of all sorts are needed for fitting one ship of 74 guns, while for smaller vessels, although the sizes may be different, the number will not materially vary from what is here stated. It was therefore long a matter of considerable moment to devise means for simplifying the mode of manufacture, and thus diminishing the cost. In the year 1781 a large manufactory was established on the river Itchen at Southampton by Mr. Taylor, who had secured a patent for an improved method of making sheaves, and who further adapted machinery for cutting the timber and shaping the shells of the blocks. Mr. Taylor so far succeeded, that he was enabled for some time to supply all the blocks required for the use of the navy. A few years after the expiration of his patent, machinery was introduced into the dock-yard at Portsmouth, and the government undertook the manufacture for the navy, with the double object of economy as to the cost, and of being independent of any individual for the supply of an article of first necessity for the equipment of ships.

About this time (1801) Mr. Brunel succeeded in completing a perfect working model for constructing both the shells and sheaves of blocks. This model being submitted to the inspection of the Lords of the Admiralty, the invention was at once adopted by government, and Mr. Brunel was engaged to superintend the construction of the requisite machinery upon a scale sufficiently large for making blocks to supply the whole naval service of the country. The completion of this machinery occupied nearly six years, and was not brought into full operation until September, 1808, since which time it has been found to work without requiring any alteration, and is attended only by workmen of the ordinary description.

The machinery in the Portsmouth Dock-yard is put in motion by a steam-engine of thirty-two horse power, the work performed by which consists of various laborious processes in addition to moving the block-machinery. By means of this latter, the shells and sheaves of blocks are cut of all the requisite sizes, and finished with a degree of precision which is found in itself to be of great advantage, since the shell or the sheave of any one block, of a given size, will fit, and may be at once adapted to any other sheave or shell, of the same size, without requiring any adjustment. It is found that with this machinery ten men can perform the work that previously required one hundred and ten men for its completion, and can easily finish, within the year, 140,000 blocks of various sorts and sizes, the value of the work performed being not less than 50,000*l*.

As a reward for his ingenuity, and for his services during six years in superintending the construction of the machinery, Mr. Brunel received from government 20,000*l*., a sum exceedingly moderate when it is considered that the annual saving to the public by means of his invention amounted every year, during the continuance of the war, to a sum at least equal to the whole compensation.

The great importance, in a national point of view, of this invention, is such, that, in order to guard against the consequences of any accident happening to the machinery at Portsmouth, during a time when the fitting of a fleet might be in progress, duplicate machinery has been constructed in the Dock-yard at Chatham, and is kept in constant readiness for action, although hitherto it has not been wanted.

BLOCKADE, LAW OF. Whenever a war takes place, it affects in various ways all states which have any connexion with the belligerent powers. A principal part accordingly of the science of international law is that which respects the rights of such neutral states. For obvious reasons this is also the most intricate part of the subject. There is here a general rule, namely, that the neutral ought not to be at all interfered with, conflicting with a great variety of exceptions, derived from what is conceived to be the right of each of the belligerents to prosecute the object of annoying its enemy, even though (within certain limits) it inflicts injury upon a third party. In the first place there is to be settled the question of what these limits [illegible]e. It evidently would not do to say that the belligerent shall not be justified in doing anything which may in any way inconvenience a neutral power; for such a principle would go nigh to tie up the hands of the belligerent altogether, inasmuch as almost any hostile act whatever might in this way be construed into an injury by neutral states. They might complain, for instance, that they suffered an inconvenience, when a belligerent power seized upon the ships of its enemy that were on their way to supply other countries with the ordinary articles of commerce. On the other hand, there is a manifest expediency in restricting the exercise of the rights of war, for the sake of the protection of neutrals, to as great an extent as is compatible with the effectual pursuit of the end for which war is waged. Accordingly it has been commonly laid down, that belligerents are not to do anything which shall have a greater tendency to incommode neutrals than to benefit themselves. It is evident however that this is a very vague rule, the application of which must give rise to many questions.

It is by this rule that publicists have endeavoured to determine the extent to which the right of blockade may properly be carried, and the manner in which it ought to be exercised. We can only notice the principal conclusions to which they have come, which indeed, so far as they are generally admitted, are nothing more than a set of rules fashioned on positive international morality (that is, so much of positive morality as states in general agree in recognizing) by judicial decision. Accordingly perhaps the most complete exposition of the modern doctrine of blockade may be collected from the admirable judgments delivered during the course of the last war by Sir William Scott (now Lord Stowell), while presiding over the High Court of Admiralty, which have been ably reported by Dr. Edwards and Sir Charles Robinson. A very convenient compendium of the law, principally derived from this source, has been given by Mr. Joseph Chitty in his work entitled *A Practical Treatise on the Law of Nations*, 8vo. Lond. 1812. The various pamphlets and published speeches of Lord Erskine, Mr. Stephen, Mr. Brougham, Mr. Alexander Baring, Lord Sheffield, and others, which appeared in the course of the controversy respecting the Orders in Council, may also be consulted with advantage. To these may be added various articles in volumes xi. xii. xiv. and xix. of the *Edinburgh Review*, particularly one in volume xix. pp. 290-317, headed *Disputes with America*, written immediately before the breaking out of the last war with that country.

The first and the essential circumstance necessary to make a good blockade is, that there be actually stationed at the place a sufficient force to prevent the entry or exit of vessels. Sir William Scott has said (case of the Vrow Judith, Jan. 17, 1799), 'a blockade is a sort of circumvallation round a place by which all foreign connexion and correspondence is, as far as human power can effect it, to be entirely cut off.' Such a check as this, it is evident, is absolutely necessary to prevent the greatest abuse of the right of blockade. The benefit accruing to a belligerent from blockading its enemy's ports, by which it claims the privilege of seizing any vessel that attempts to touch or has actually touched at such ports, and the inconvenience thereby inflicted upon neutrals, would both, without such a provision, be absolutely unlimited. In point of fact, belligerents have frequently affected, in their declarations of blockade, to overstep the boundaries thus set to the exercise of the right. France, as Mr. Brougham has shown in his speech delivered before the House of Commons, 1st April, 1808, in support of the petitions of London, Liverpool, and other towns, against the orders in council, has repeatedly done so both since and previous to the Revolution. She did so in 1739, and in 1756, and also in 1796, in 1797, and in 1800. But in none of these instances were her pretended blockades either submitted to by neutrals, or even to any considerable extent attempted to be enforced by herself. There can be no doubt that no prize court would now condemn a vessel captured for the alleged violation of any such mere nominal blockade. It has however been decided that the blockade is good although the ships stationed at the place may have been for a short time removed to a little distance by a sudden change of wind, or any similar cause.

The second, and only other circumstance necessary to constitute a blockade which the prize-courts will recognize, is, that the party violating it shall be proved to have been aware of its existence. 'It is at all times most convenient,' Sir William Scott has said in one of his judgments (see case of the Rolla in Robinson's *Reports*), 'that the blockade should be declared in a public and distinct manner.' There ought to be a formal notification from the blockading power to all other countries. Nevertheless this is not absolutely required, and a neutral will not be permitted with impunity to violate a blockade of which the master of the vessel may reasonably be presumed to be aware from the mere notoriety of the fact. Sir William Scott however has said that, whereas when a notification has been formally given, the mere act of sailing with a contingent destination to enter the blockaded port if the blockade shall be found to be raised, will constitute the offence of violation, it might be different in the case of a blockade existing *de facto* only.'

With regard to neutral vessels lying at the place where the blockade commences, the rule is, that they may retire freely after the notification of the blockade, taking with them the cargoes with which they may be already laden; but they must not take in any new cargo.

The offence of violation is effected either by going into the place blockaded, or by coming out of it with a cargo taken in after the commencement of the blockade. But vessels must not even approach the place with the evident intention of entering if they can effect their object. It would even appear that a vessel will render itself liable to seizure and condemnation if it can be proved to have set sail with that intention. In such cases however it must be always difficult for the captors to make out a satisfactory case.

After a ship has once violated a blockade, it is considered that the offence is not purged, in ordinary circumstances, until she shall have returned to the port from which she originally set out; that is to say, she may be seized at any moment up to the termination of her homeward voyage. If the blockade however has been raised before the capture, the offence is held to be no longer punishable, and a judgment of restitution will be pronounced.

The effect of a violation of blockade to the offending party when captured, is the condemnation usually of both the ship and the cargo. If however it can be shown that the parties to whom the cargo belongs were not implicated in the offence committed by the master of the ship, the cargo will be restored. It has sometimes, on the contrary, happened that the owners of the cargo have been found to be the only guilty parties, in which case the judgment has been for the condemnation of the cargo, and the restitution of the ship.

If a place, as generally happens in the case of maritime blockades, be blockaded by sea only, a neutral may carry on commerce with it by inland communications. The neutral vessel may enter a neighbouring port not included in the blockade with goods destined to be carried thence over land into the blockaded place.

When a place has once been notified to be blockaded, a counter notice should always be given by the blockading power when the blockade has ceased. The observance of this formality is obviously conducive to the general convenience, but there are of course no means of punishing a belligerent for its neglect.

In this country a blockade is ordered and declared by the king in council. It is held however that a commander of a king's ship on a station so distant as to preclude the government at home from interfering with the expedition necessary to meet the change of circumstances, may have authority delegated to him to extend or vary the blockade on the line of coast on which he is stationed. But the courts will not recognize a blockade altered in this manner within the limits of Europe. It appears to be necessary for the sake of the public convenience that the power of declaring a blockade should, as far as possible, be exercised only by the sovereign power *in a state*: but it would perhaps be going too far to insist that it should in no circumstances be delegated to a subordinate authority. This would seem to be something very like interfering with the internal arrangements of states.

Some very important questions connected with the law of blockade were brought into discussion in the course of the late war by the Berlin decree of Bonaparte and the orders of the British king in council.

The Berlin decree, which was issued on the 21st of Nov. 1806, declared the whole of the British islands in a state of blockade, and all vessels, of whatever country, trading to them liable to be captured by the ships of France. It also shut out all British vessels and produce both from France and from all the other countries then subject to the authority of the French emperor. By a subsequent decree, issued soon after in aid of this, all neutral vessels were required to carry what were called letters or certificates of origin, that is, attestations from the French consuls of the ports from which they had set out, that no part of their cargo was British. This was the revival of an expedient which had been first resorted to by the Directory in 1796.

There can be no question as to the invalidity of this blockade, according to the recognized principles of the law of nations: the essential circumstance of a good blockade, namely, the presence of a force sufficient to maintain it, was here entirely wanting. And it is proper also to state that a certain representation of the nature of the decree, much insisted upon by some of the writers and pamphleteers in the course of the subsequent discussions, with the view of mitigating its absurdity and violence, that is to say, that it was never attempted to be enforced, is now well known not to have been strictly correct. Many vessels of neutrals were actually captured and condemned by the French courts, in conformity with it, during the first few months which followed its promulgation.

The first step in resistance to the Berlin decree was taken by Great Britain on the 7th of January, 1807, while the Whig ministry of which Mr. Fox had been the head was still in office, by an order in council subjecting to seizure all neutral vessels trading from one hostile port in Europe to another with property belonging to an enemy. This order however is said to have been extensively evaded; while, at the same time, new efforts began to be made by the French emperor to enforce the Berlin decree. It is admitted that in the course of the months of September and October, 1807, several neutral vessels were captured for violation of that decree; that a considerable alarm was excited among the mercantile classes in this country by these acts of violence; that the premium of insurance rose; and that some suspension of trade took place. (See *Edin. Rev.* vol. xiv. p. 442, &c.) It is contended by the supporters of the British orders in council, that the effect of the Berlin decree upon the commerce of this country during the months of August, September, and October in particular, was most severely felt. (See Mr. Stephen's *Speech.*)

In these circumstances the British government, at the head of which Mr. Perceval now was, issued further orders in council, dated the 11th and 21st November, 1807. These new orders declared France and all its tributary states to be in a state of blockade, and all vessels subject to seizure which were either found to have certificates of origin on board, or which should attempt to trade with any of the parts of the world thus blockaded. All neutral vessels, intended for France or any other hostile country, were ordered in all cases to touch first at some British port, and to pay custom dues there, after which they were, in certain cases, to be allowed to depart to their destination. In all cases, in like manner, vessels clearing out from a hostile port were, before proceeding farther on their voyage, to touch at a British port.

The predicament in which neutral countries were placed by this war of edicts was sufficiently embarrassing. The effect of the recent British orders in council is thus distinctly stated by a writer in the *Edinburgh Review*, vol. xii. p. 229: 'Taken in combination with the Berlin decree, they interdict the whole foreign trade of all neutral nations; they prohibit everything which that decree had allowed; and they enjoin those very things which are there made a ground of confiscation.'

By a subsequent decree, issued by Bonaparte from Milan on the 27th of December, 1807, the British dominions in all quarters of the world were declared to be in a state of blockade, and all countries were prohibited from trading with each other in any articles produced or manufactured in the parts of the earth thus put under a ban. Various additional orders in council were also promulgated from time to time, in explanation or slight modification of those last mentioned.

It is asserted by the opponents of this policy of the British government, that the result was a diminution in the course of the following year of the foreign trade of this country to the extent of fourteen millions sterling. It is even contended that, but for some counteracting causes which happened to operate at the same time, the falling off would have been nearly twice as great. (See *Edin. Rev.* vol. xiv. p. 442, &c.)

The principal branch of trade affected was that with America, which was at this time the only great neutral power in existence; and which in that capacity had, previous to the Berlin decree, been an annual purchaser of British manufactures to a large amount, partly for home consumption, but to a much larger extent for the supply of the Continent. Both the Americans, therefore, and the various parties in this country interested in this export trade, exclaimed loudly against the edicts of the two belligerent powers. It appears that the American government, on application to that of France, obtained an assurance, which was deemed satisfactory, though not in an official form, that the Berlin decree would not be put in force against American vessels; but when this was urged as a sufficient reason for the revocation of the English orders in council, the English government refused to pay any attention to it, maintaining that America should insist upon a public renunciation of the obnoxious French decree.

The subject was brought before parliament in March, 1808, by motions made in both houses asserting the illegality of the orders in council. On the 1st of April the merchants of London, Liverpool, and other towns, who had petitioned for the repeal of the orders, on the ground of their injurious operation upon the commercial interests of the country, were heard at the bar by their counsel, Mr. Brougham, whose speech, as has been already mentioned, was afterwards published. The result was, that ministers consented to the institution of an inquiry into the effect of the orders, in the course of which many witnesses were brought forward both by the petitioners and by the ministers in support of their respective views. But no immediate result followed, either from this inquiry, or from a motion made in the House of Commons on the 6th of March, 1809, by Mr. Whitbread, declaratory of the expediency of acquiescing in the propositions made by the government of the United States.

On the 26th of April however a new order in council was issued, which, it was contended by the opponents of the policy hitherto pursued, did in fact amount to an abandonment of the whole principle of that policy. On the pretext that the state of circumstances, so far as the Continent was concerned, had undergone a complete change by the insurrection of the Spaniards, the blockade, which had formerly extended to all the countries under the authority of France, was now confined to France itself, to Holland, to part of Germany, and to the north of Italy; and the order which condemned vessels for having certificates of origin on board was rescinded. On the other hand, the interdict against trading with the blockaded ports was apparently made more strict and severe by the revocation of the liberty formerly given, in certain cases, to neutral vessels to sail for an enemy's port after having first touched at one in Great Britain. Upon this point however some important modifications were made by subsequent orders. A system was introduced of licensing certain vessels to proceed to hostile ports after having first touched and paid custom-dues at a British port; and this was eventually carried so far, that at last the number of such licences granted is said to have exceeded 16,000.

The position however in which America was still placed was such as almost to force her to go to war either with England or France. In this state of things, in the spring of 1812 a vigorous effort was again made by the opposition in parliament to obtain the entire removal of the orders in council. In the Lords, a motion was made by the Marquis of Lansdowne on the 28th of February for a select committee of inquiry into the effect of the orders, but was negatived by a majority of 135 to 71. On the 3rd of March a similar motion made in the Commons by Mr. Brougham was also rejected by a majority of 216 to 144. On the 3rd of April however an order of the prince regent in council appeared in the 'Gazette,' revoking entirely the former orders in so far as regarded America, but only on the condition that the government of the United States should also revoke an order by which it had some time previously excluded British armed vessels from its ports, while it admitted those of France. This conditional revocation being still considered unsatisfactory, Lord Stanley, on the 28th of April, moved in the Commons for a committee of inquiry into the subject generally, and the discussion ended by ministers giving their assent to the motion. Many witnesses were in consequence examined, both by this committee and by another of the Lords, which sat at the same time, having been obtained on the 5th of May on the motion of Earl Fitzwilliam. When the examinations had been brought to a close, Mr. Brougham, on the 16th of June, moved in the commons, that the crown should be addressed to recall or suspend the orders unconditionally. At the termination of this discussion ministers intimated that they were prepared to concede the question: and accordingly, on the 23rd of the same month, an unconditional suspension of the orders, in so far as America was concerned, appeared in the 'Gazette.' By this time however the government of the United States had declared war, on the ground, as is well known, not only of the orders in council, but of other alleged acts of injustice on the part of the British government.

The policy of the British government in issuing the orders in council of November, 1807, was maintained by its opponents to be wrong, on the double ground that it was both inexpedient and not warranted by the principles of the law of nations. On this latter head it was argued that no violation of international law by one belligerent power could justify the other in pursuing a similar course.

The question, like all others connected with the law of blockade, appears to be one which must be determined chiefly by a reference to the rights of neutral powers, as regulated by the principle already stated, namely, that no neutral power shall be annoyed or incommoded by any warlike operation, which shall not have a greater tendency to benefit the belligerent than to injure the neutral. In this case the benefit which the British government professed to expect from its retaliatory policy, which was the excitement of a spirit of resistance to the original French decree both in neutral countries and among the people of France themselves, was extremely problematical from the first, and turned out eventually to be wholly delusive. On the other hand, the injury to neutrals was certain and of large amount, tending in fact to interdict and, as far as possible, to put a stop to the entire peaceful commercial intercourse of the world.

The orders in council were sometimes defended, for want of better reasons, on a very peculiar ground, namely, on that of the pecuniary advantage which the country derived from the captures made under them, from the increase of port dues which they occasioned, and from the revenue obtained by the licensing system.

In resting the justification of the orders in council upon the ground of their expediency, their defenders of course contended that they were essential to the effective prosecution of the war, and that we were therefore justified in disregarding the injury which they might indirectly inflict upon neutrals. It was anticipated, as we have observed above, in the first place, that the pressure of their operation would excite both the American government, and even the inhabitants of France themselves, and of the various countries of Europe subject to the French emperor, to insist upon the revocation of the Berlin decree. But the effect anticipated was not produced. Neither the people of France, nor of any other portion of Bonaparte's empire, rose or threatened to rise in insurrection on account of the stoppage of trade occasioned by the edicts of the two belligerent powers; and America went to war, not with France, but with us, choosing to reserve the assertion of her claims for wrongs suffered under the Berlin decree to another opportunity, while she determined to resist our orders in council by force of arms. But secondly, it was contended that the policy adopted by the orders in council was necessary to save our commerce from what would otherwise have been the ruinous effects of the Berlin decree. This argument, also, if its validity is to be tried by the facts as they actually fell out, will scarcely appear to be well founded. The preponderance of the evidence collected in the course of the successive inquiries which took place was decidedly in favour of the representations made by the opponents of the orders, who maintained that, instead of having proved any protection or support to our foreign trade, they had most seriously embarrassed and curtailed it. The authors of the orders themselves must indeed be considered to have come over to this view of the matter, when they consented, as they at length did, to their entire repeal.

In the actual circumstances of the present case, the convenient interposition of America, by means of which British manufactured goods were still enabled to find their way in large quantities to the continent in spite of the Berlin decree, would seem to have been the last thing at which the government of this country should have taken umbrage, or which it should have attempted to put down. As the French ruler found it expedient to tolerate this interposition, in open disregard of his decree, it surely was no business of ours to set ourselves to cut off a channel of exit for our merchandise, so fortunately left open when nearly every other was shut.

BLOCKADE. This consists in surrounding a fortified place by a cordon of troops, in order to prevent supplies of provisions or warlike stores from entering, and to compel the garrison to surrender from famine or the failure of their ammunition. The generality of the antient sieges were blockades, and two of the most memorable in Grecian history were those of Platæa and Pydna. The former lasted two years, and is remarkable for being the first of which any connected details have been given. Pydna, in which city Olympias had taken refuge, was closely invested by Cassander both by sea and land, and did not surrender till the garrison had suffered the utmost extremity of famine.

When fortresses are situated on rocky eminences, whose sides are steep by nature, or can be made so by human labour; when they are approachable only by narrow passes, and the surrounding country is unfavourable for the execution of the works required in carrying on a regular siege, their reduction is most conveniently effected by a blockade, because they can be masked by a corps of troops not so numerous as to diminish materially the strength of the army in the field; and their garrisons, being necessarily small, are unable to attempt any serious enterprise.

In Europe however nearly all the old fortresses of this kind have been suffered to go to ruin, the smallness of their garrisons rendering them wholly useless; and therefore, since the end of the seventeenth century, blockades have been much less frequent than they were before that time. During the continuance of the war which was carried on by the Germans and Venetians against the Turks, and which ended with the peace of Carlowitz in 1698, several places were taken from the Turks after having been long invested; it was thus that, in Hungary, the fort of Agria and the towns of Mongatz and Great Waradin were taken by the Imperialists, and that in the Morea, the Venetian general obtained possession of Napoli di Malvasia.

Fortified towns may be blockaded when means are wanting to execute trenches and ricochetting batteries; and when besides the place is known to be incompletely furnished with the necessary stores, and to contain a numerous population within its walls. In such circumstances it may reasonably be expected that the place will in time be surrendered, particularly if it be the seat of an extensive commerce, or if the inhabitants should be disaffected to their government. The loss occasioned by the stoppage of the usual channels of trade, the discomfort arising from being confined within the fortifications; and chiefly, the distress brought on by the scarcity, and consequently the high price of the necessaries of life, never fail to produce dissatisfaction and even tumults among the citizens; and in the end the commander of the place is generally compelled by clamour, or induced by solicitation, to comply with the wishes of the people and to deliver up his charge to the enemy.

In the establishment of a blockade, the outposts of the garrison are first driven as near as possible to the place, and bodies of troops consisting of one or more companies, or even battalions, are disposed in convenient situations before all the accessible fronts: these are also strengthened at intervals by redoubts containing artillery, and if the place is on the sea-coast, a naval armament watches it on that side. Corps of cavalry and infantry are made to occupy any villages on the several roads by which it may be attempted to throw supplies into the place; advanced posts also, each consisting of a few men, watch the town closely, and maintain the communications between the different divisions of the blockading corps, by which means any movement of the garrison may be immediately discovered.

The blockading corps should also be supported by a reserve, established at a greater distance from the place; and in the event of a convoy approaching with succours for the garrison, the commander of the blockading army sends forward one or more battalions from those posts which lie nearest to the road by which the convoy is to arrive. These engage the convoy and prevent it from entering the place, while other troops from the neighbouring posts oppose those of the garrison, if the latter should make a sortie in order to favour the operations of the succouring corps.

On the other hand, in order to counteract as much as possible the efforts of the enemy, all persons who cannot be rendered serviceable in the defence, or who cannot lay in a sufficient supply of provisions for their support during the probable continuance of the blockade, are sent out of the town; the necessary quantities of provisions and military stores are provided, and secured in casemates or shell-proof blindages, if a bombardment is apprehended, and the consumption of every article is carefully economized. The garrison should keep the field as long as possible, disputing with the enemy every spot which he may endeavour to occupy, and destroying every thing which may afford him cover: sorties should be made whenever a hope of success presents itself without risking the loss of many men, and every other means should be taken as long as possible to prevent the enemy from establishing his posts, or forming redoubts about the place.

In 1757 the King of Prussia blockaded Prague, a populous city, and garrisoned by 60,000 soldiers; the investment continued six weeks, during which time all the avenues were occupied and several engagements took place. The history of the late Peninsular War affords however one of the best examples of reducing a fortified town by a blockade, in that which the Duke, then the Marquis, of Wellington, caused to be established about Pampeluna in 1813. This town had a garrison consisting of more than 4000 men, while the British army could spare neither troops nor artillery sufficient to ensure its surrender by a siege. Nine strong redoubts, each capable of containing a garrison of 200 or 300 men, with some field-pieces, were constructed on commanding heights, at from 1200 to 1500 yards from the place, and served to repel every sortie from thence, while the rest of the blockading force was quartered in the neighbouring villages, or bivouacked beyond the range of the artillery of the fortress. Buildings near the latter were barricaded and formed strong advanced posts; the roads were blocked up as usual, and small field-works covered the guards of the army. The blockade continued three months; and when Marshal Soult advanced to the relief of the town, notwithstanding that the British troops in concentrating themselves to oppose him were necessarily drawn away from the posts which they occupied, yet the precautions used were such, that no communication could take place between the garrison and the French army, though the latter was almost within sight of the ramparts.

(See Lallemand, *Traité des Opérations Secondaires de la Guerre*; Jomini, *Traité des grandes Opérations Militaires*; Colonel Sir J. T. Jones, *Journals of Sieges in Spain*.)

BLOCKHOUSE (also written BLOCKHAUS), among military edifices is, as the name implies, a building constructed chiefly of timber; if alone, it constitutes an independent fort; if formed in the interior of a field-work, it becomes a retrenchment or reduit, and serves to protect the defenders from the inclemency of the weather when the work is occupied during a considerable time, or to prolong the defence when the work is attacked; and, after it is taken, to enable the garrison to obtain a capitulation.

When the blockhouse is to be employed only as a retrenchment, its plan is generally a simple rectangle, and its walls consist of a single row of piles, placed upright in the ground; these are pierced with loop-holes, at the distance of three feet from each other, in order that the building may be defended by a fire of musketry from within. The roof is formed by laying timbers horizontally across the inclosed area, and covering them with fascines and earth. The covering materials, when the work is intended to be bomb-proof, must be at least four feet thick, since the shells fired from field-howitzers penetrate into earth nearly to that depth. The entrances, when formed in the walls, are protected by inclined blindages, or by palisades, planted close together in their front, and pierced with loop-holes; but occasionally the entrances are in the roof, and access to them is then obtained by means of ladders.

The interior breadth of the building may be about eighteen feet, in order to allow a passage between the two rows of bedsteads: these are placed with their heads to the side walls, and serve as stages on which the men may stand to fire through the loop-holes when the latter are much elevated above the floor.

Reduits of this kind are nearly indispensable in situations commanded by heights, when consequently the interior of the principal work is so subject to the plunging fires of the enemy, that the defenders could not otherwise find shelter, and then the side-walls should be thick enough to resist a fire of artillery. In other circumstances it would be advisable that the parapets of the principal work should conceal the reduit from the view of the enemy; for which purpose the roof of the latter should be kept as low as possible; and in this case, in order to afford sufficient height in the interior, which should not be less than eight feet, it may be necessary to sink the floor below the level of the natural ground.

In a mountainous country the blockhouse possesses great advantages over an ordinary field-fort, inasmuch as the interior of the latter would be incessantly ploughed up by the fire of artillery directed into it by the enemy from the surrounding heights. Hence then the blockhouse may with propriety be constructed as an independent work; its plan may have re-entering angles, or be in the form of a cross, in order to allow the faces to be defended by flanking fires of musketry from within; and the walls may be thick enough to resist the shot from nine-pounder guns. For this purpose they must be made by planting parallel to each other, at the distance of three or four feet, two rows of strong piles, those in each row being close together, and the interval between the rows being filled with earth up to the height of the loop-holes, which should now be immediately under the roof of the building. The roof must be made shell-proof as before; but it has been recommended, when the work is not overlooked by the enemy, and when its breadth will permit, to have the piles forming the side-walls long enough to rise above the roof, and, either alone, or with a mass of earth behind them, to serve as a parapet.

To prevent the enemy from setting fire to the blockhouse, it should be surrounded by a ditch; part of the earth obtained from thence should be raised against the building as high as the loop-holes, in order to strengthen it externally, and the rest may be thrown beyond the counterscarp, to form there what is called a reverse glacis.

Any area inclosed for the purposes of defence by piles or palisades, or by logs of timber horizontally disposed, but without a roof, and defended by loop-holes and machicolations, is sometimes called a blockhouse; more generally, however, such constructions are called stockades, under which word they will be described.

(See Bousmard, *Essai Général de Fortification*; Dufour, *Mémorial pour les Travaux de Guerre*; Macauley, Captain J. S., *Treatise on Field Fortification*.)

BLOCKING-COURSE. [See ENTABLATURE.]

BLOEMAART, ABRAHAM, an historical painter, was born at Gorcum in 1567, but resided principally at Utrecht. His father practised architecture and sculpture. He possessed originality and feeling, but was a complete mannerist, making nature subservient to his own peculiar style. Some accounts say that he never travelled; but others, perhaps of better authority, state that he spent at least above ten years at Paris. Still his advantages from travelling were not great, and this circumstance must have conduced to keep his genius cramped, and have prevented his acquiring a correct taste. Thus he has painted historical pictures in which the figures are as large as life, which shows that he had the ambition of doing something great; but the costume is still Dutch, no matter what the subject may be. This error has indeed been committed by other painters, both before and since his time, in the highest departments of the art; though certainly it is a more unfortunate blunder in Holland than in Italy. He acquired however considerable skill in the practice of his art. Besides historical pictures he also executed some landscapes, which have been admired, and he was not a stranger to the etching needle. His works have remained almost entirely in his native country, and are chiefly at Amsterdam. There are pictures of his in some of the churches at Brussels and Mechlin. He died in 1647, according to some accounts, but others say 1657. There are engravings of his works very spiritedly executed by Bolswert.

Abraham left four sons, two painters and two engravers; according to other accounts, only three sons. Cornelius, the eldest, was an engraver, and is said to have introduced certain improvements in the practice of his art, giving a softer edge to his shadows than his predecessors. The accounts of Bloemaart and his sons are exceedingly confused and contradictory. In some particulars we have followed *Het Leven der doorlucht. Nederland. en eenige Hoogduitsche Schilders*, &c., door K. Van Mander; J. de Jongh's ed. 1764.

END OF VOLUME THE FOURTH.

WILLIAM CLOWES and SONS, Stamford-street.